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Memorandum

To: Ernie Martin
From: Karen Gross
c.c.: Natasha Collins
Date: 2/17/11
Subject: Saco-Buxton, State Route 112
PIN 9493.10
Final Geotechnical Information
Series 100 Report No. 2011-104

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The final geotechnical investigations and analysis are completed for this project. The following sections summarize all observations, existing information, geologic conditions, subsurface investigations, and testing data used to develop the scope, design, and construction considerations for this roadway.

BACKGROUND INFORMATION

The proposed project is located in the towns of Saco and Buxton on State Route 112. It begins 0.4 km [0.25 mile] northwest of Rocky Hill Road in Saco (RLM 5.57) and extends 5.4 km [3.38 miles] to just south of the intersection with U.S. Route 202 in Buxton (RLM 8.95). This section of Route 112 is classified as a major urban collector.

The scope of work for this project is full reconstruction of the roadway which includes a new pavement structure, paved shoulders, and major drainage improvements. The proposed roadway template is 3.3 meter [11 ft] wide travel lanes and 1.5 meter [5 ft] wide shoulders.

EXISTING CONDITIONS

Inspections of the existing roadway were made periodically to monitor pavement structure deterioration and drainage conditions. A Maintenance Surface Treatment (MST) was placed in 2003 from the intersection with State Route 117 to the intersection with US Route 202. Many observed distresses were covered up with the MST, however a majority of those underlying distresses are visible at this time. MST's do not correct pavement structural deficiencies, but function to improve the ride quality until the roadway is reconstructed or rehabilitated.

In general, the pavement is moderately to severely distressed for the entire project length. Distress is caused primarily by: 1) lack of structural support for heavy truck loadings, 2) frost heaving in the winter and thaw weakening in the spring, 3) poor surface and subsurface drainage conditions, and 4) pavement age. Pavement distress types of concern are structural inadequacy distresses including alligator cracking, longitudinal cracking, and severe rutting of the right wheel path. Deep rutting of the right wheel path is typical on roadways with unpaved



Highway Program

shoulders and high truck loadings. This is a result of many factors, but poor support from the unpaved shoulders, lack of structure, and water entering into the pavement through the gravel shoulders and cracks are the main causes. When these deep ruts appear, it usually indicates a subgrade failure.

The ride quality of this roadway is very poor during the winter and spring. Numerous frost heaves were observed, with severe heaves at some cross pipe locations and at areas where there is either shallow bedrock present or the groundwater table is high. Approximate larger heave locations are at Stations 8+658, 9+670, 9+730, 9+880, 10+260, 10+480, and 10+895. A final frost inspection was conducted on February 16, 2011. Large frost heaves were not observed at this time, but the ride on the entire project length was very rough and “rolling” both longitudinally and transversely. The shoulder gravel was about 100 mm [4”] higher than the roadway. All of these observations indicate that the roadway is experiencing the effects of frost action.

During the spring thaw, water was observed coming up through the cracks in the asphalt at many locations. The area located on the hill just south of the intersection with Route 117 (Station 8+000 to 8+160) had significant seepage with water streaming down over the pavement surface. Water seeping up through the pavement can indicate that water is trapped beneath the pavement structure, that ice lenses are forming in the winter, or that the groundwater table or springs are fairly close to the surface. This section of the roadway exhibits one of the most severe pavement distress sections on the project.

In addition to water being trapped beneath the pavement, the roadway lacks proper ditching to remove stormwater. The topography is very flat in many locations, so stormwater tends to stand along the side of the roadway until it infiltrates into the ground or evaporates. One of the major sources of water in the pavement structure is from stormwater infiltrating in through cracks in the HMA. Water infiltrating in through unpaved shoulders is another major source, especially if there is no ditches to quickly remove surface water.

AS-BUILT PLANS

No as-built plans were located for this section of Route 112.

INVESTIGATIONS

Pavement structure information was collected in thirty five borings in the roadway and eight borings in the shoulders. Non-destructive testing using a Falling Weight Deflectometer (FWD) was completed at 100 meter intervals. The FWD information was used to characterize the subgrade, and through backcalculation, determine the subgrade resilient modulus needed for the pavement design.

Fourteen samples were tested to determine the gradation of the subbase and subgrade, the soil classification, water content, and frost rating.

The following information is a summary of the subsurface, lab testing, and FWD information. A summary table with the subsurface information by station is attached at the end of this memo.

Hot Mix Asphalt (HMA)

The existing HMA in the travel lanes ranges from 120 mm to 200 mm [4 ¾" to 8"] in thickness. Shoulders are not paved with HMA. A layer of unbound asphalt was also found at many locations. This unbound asphalt layer could be the original surface layer (penetrated gravel) or a deteriorated asphalt base layer.

The FWD deflection data indicates that there high deflections in surface layer. High deflections in the surface correlate to the distress levels in the asphalt layer. These high deflection values are expected based on the visual appearance of the surface.

Subbase

The existing subbase material ranges from 150 mm to 760 mm [6" to 30"] in thickness. The majority of the boring locations indicate that the subbase is between 400 mm and 500 mm [16" to 20"] in thickness. Representative samples were tested to determine the gradation, water content, and the USCS and AASHTO classifications of the subbase and subgrade. All subbase samples tested did not meet the gradation requirements for Standard Specification 703.06 Aggregate Base and Subbase, exceeding the requirements on the #200 and #40 sieves. Of the subbase samples tested those at Stations 6+990 and 11+520 had high water contents. The existing subbase is considered slightly frost susceptible.

Subgrade

Borings and lab test results indicate that that the existing subgrade soils on this project consist primarily of sand with varying amounts of silt. Marine clay-silt was encountered at subgrade in borings at Stations 7+680 and 8+960. All subgrade soils have a moderately to highly frost susceptible frost susceptibility rating. Shallow bedrock refusal was encountered in borings at Station 8+700, with deeper refusals at Stations 7+680 and 7+700.

The Maine Surficial Geology map for Bar Mills indicates the surficial soils consist primarily of marine regressive sand deposits from Station 6+420 to 7+660 and Station 8+410 to 11+640, and Presumpscot Formation from 7+660 to 8+410. These locations have been approximated and are based on measurements using the map’s scale and correlated to the design stationing. Borings confirm these soil deposits and also indicate that the clay-silt deposits extend beyond what is shown on the geology maps. Table 1 summarizes the expected surficial deposits and their descriptions. The Surficial Geology maps showing the soil deposit locations are attached at the end of this memo.

Table 1: Surficial Geology summary

Deposit	Description
Marine regressive sand (Pmns)	Sand
Presumpscot Formation (Pp)	Clay-Silt, variable amounts of sand

The York County Soil Conservation Survey (SCS) maps indicate that the surficial soils also are predominately sand with varying amounts of silt, and compares to what was found in the

borings. These include Adams, Allagash, Buxton, Croghan, Lyman, Madawaska, Naumburg, and Scantic soils. Table 2 summarizes the soils on the project and some of the factors that affect the pavement performance. The Soil Survey maps showing soil unit locations are attached at the end of this memo.

Table 2: Soil Survey Summary

Soil Unit	Description	Depth to H ₂ O (ft)	Depth to Bedrock (ft)	Frost Action	% Passing #200
Adams (AdB, AdD)	Sand and silty sand	> 6'	> 5'	Low	0 - 90
Allagash (AlB, AlC)	Silty sand and silt	> 6'	> 5'	Low	0 - 90
Buxton (BuB, BuC, BuD)	Clay-Silt	1' - 3'	> 5'	High	85 - 100
Croghan (CrB)	Sand and silty sand	1.5' - 2.0'	> 5'	Moderate	5 - 40
Lyman (LnB, LnC, LnD)	Silty sand and silt	> 6'	10" - 20"	Moderate	25 - 70
Madawaska (MaB)	Silty sand and silt	1' - 3'	> 5'	Moderate	5 - 75
Naumburg (Na)	Sand and silty sand	0 - 1.5	> 5'	Moderate	5 - 45
Scantic (Sc)	Clay-Silt	0 - 1'	> 5'	High	70 - 100

The FWD deflection data indicates that there moderate deflections in subgrade. Deflections in the subgrade can indicate weak subgrade soils, wet subgrade soils, or that the asphalt surface is in such poor condition that the stress applied during testing is transferred down through the pavement structure onto the subgrade. Low resilient modulus values calculated in the FWD analysis between Stations 7+800 to 7+900 are most probably due to weak marine clay-silt soils. Low resilient modulus values calculated in the FWD analysis between Stations 11+300 to 11+500 are most probably due to wet soils.

Shoulders

The existing unpaved shoulders consist of granular material that is variable in thickness. The gradation appears to be similar to that of the subbase material under the HMA layer. It is unknown if it is natural or placed during the original roadway construction. This material is considered moderately frost susceptible.

Bedrock

Shallow bedrock refusal was encountered in borings at Station 8+700, with deeper refusals at Stations 7+680 and 7+700. The backcalculated resilient modulus values from the FWD analysis indicate that shallow bedrock probably exists at Stations 7+200, 7+500, and 8+700. A bedrock outcrop is also shown on the survey plans and observed on the ARAN tapes from Station 7+400 to 7+460.

The Surficial Geology map indicates that shallow bedrock may be present in the general vicinity of Station 8+000. The SCS maps indicate shallow bedrock may be present between Stations 7+000 to 7+825, and Station 8+500 to 8+700. The boundaries on the geology and agricultural maps are approximate, therefore these stations are an approximation also.

Groundwater

Shallow groundwater was observed in borings at the time of drilling between Stations 7+110 to 8+960 and Stations 11+360 to 11+520. The SCS maps indicate that a high groundwater table (apparent or perched) is probable for most of the project length.

SUMMARY

The following are a summary of observations and geotechnical information:

Summary of Observations

- The existing asphalt is moderately to severely distressed.
- The existing shoulders are not paved therefore they provide no confining stress (support) for the pavement structure. Water can easily enter into the pavement structure through gravel shoulders.
- Water seeps were observed in the cracks in the asphalt indicating water is trapped beneath the asphalt.
- Frost heaves are numerous in the winter months.
- There are insufficient drainage ditches to remove surface water.

Summary of Geotechnical Information

- The existing asphalt ranges from 120 mm to 200 mm [4 ¾" to 8"] in thickness. An unbound asphalt layer is present under the HMA layer at many locations.
- The existing subbase and shoulder gravel does not meet MaineDOT Standard Specification 703.06 – Aggregate Base and Subbase.
- The subgrade consists primarily of sand with varying amounts of silt. The subgrade is considered moderately to highly frost susceptible for most of the project.
- A high groundwater table can be expected throughout the project.
- Based on the existing soils and the presence of a high groundwater table, frost action is probable throughout the project. The anticipated depth of frost is 0.76 m to 1.73 m [30" to 68"] with depth depending on soil type.
- From the geology information and geotechnical investigations, shallow bedrock can be expected approximately from Station 7+000 to 7+850 and from Station 8+500 to 8+700.
- The FWD deflection data indicates that the surface layer is in very poor condition.
- The FWD deflection data indicates that there are moderate deflections in subgrade indicating weak subgrade soils, wet subgrade soils, or that the asphalt surface is in poor condition.
- Low resilient modulus values calculated in the FWD analysis between Stations 11+300 to 11+500 are most probably due to wet soils. Low resilient modulus values calculated in the FWD analysis between Stations 7+800 to 7+900 are most probably due to weak marine clay-silt soils.

DESIGN CONSIDERATIONS

The following are considerations for design and reconstruction of this roadway:

- The existing asphalt is moderately to severely distressed. Overlaying the existing pavement is not recommended. The existing HMA and unbound asphalt can be pulverized and used as a stabilized base material.

- The existing subbase does not meet MaineDOT requirements for subbase or base material. The existing subbase should be excavated and replaced with aggregate that meet MaineDOT specifications.
- Since the subgrade soils are frost susceptible and there is a high groundwater table, a 760 mm (30 inch) pavement section should be used to reduce frost damage to the pavement structure.
- Since the subgrade soils are frost susceptible and there is a high groundwater table, raising the existing vertical profile will improve frost heaving issues.
- The 75th percentile of the subgrade resilient modulus values measured in the FWD analysis and appropriate for use in the pavement design is 28,480 kPa (4130 psi).
- Positive drainage of the pavement structure is recommended either by daylighting the base/subbase material onto the inslope or by use of underdrains.
- Springs may be present at any location under the pavement structure and will not become apparent until the HMA layer is removed. Provisions should be made in the contract for corrective measures if springs are encountered. French drains and weepers are two methods that are used to provide proper drainage.
- Completing all the drainage work prior to removing the pavement is recommended to avoid damage to the subgrade from heavy vehicles. Subgrade soils are expected to be soft at certain times of the year because of a high groundwater table.
- Bedrock is probable from Station 7+000 to 7+850 and from Station 8+500 to 8+700. Any cuts or drainage systems within these limits should be further investigated to determine removal quantities and to identify depths on plans.

All the supporting documentation to develop this memo are attached at the end of this memo for your reference. Please let me know if I can provide you with any additional information for this project.

Attachments:

Project Location Map

Geotechnical Investigations Summary

Boring Logs

FWD Analysis

Laboratory Testing Summary Sheet

Grain Size Distribution Curves

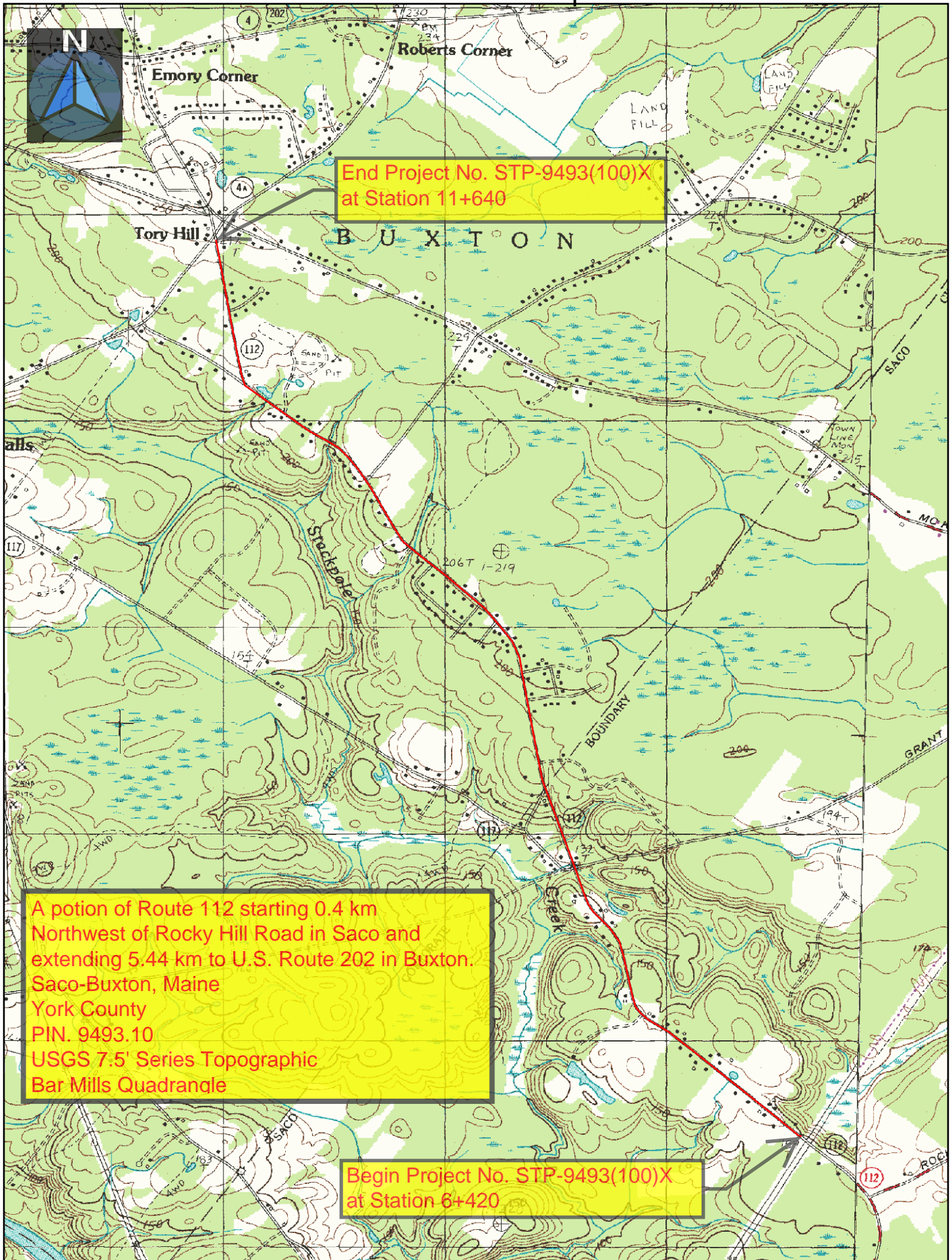
Surficial Geology Map – Bar Mills Quadrangle

Soil Conservation Survey Map – York County

Frost Depth and Susceptibility Charts

GEOPLANS

Location Map



End Project No. STP-9493(100)X
at Station 11+640

A portion of Route 112 starting 0.4 km
Northwest of Rocky Hill Road in Saco and
extending 5.44 km to U.S. Route 202 in Buxton.
Saco-Buxton, Maine
York County
PIN. 9493.10
USGS 7.5' Series Topographic
Bar Mills Quadrangle

Begin Project No. STP-9493(100)X
at Station 6+420

Map Scale 1:24000

The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch. Road names used on this map may not match official road names.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+676, CL	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S4		0.18 - 0.46			SSA	-0.18		PAVEMENT.		
							-0.58		Brown, damp, gravelly SAND, some silt (Fill). Cobble from 0.46-0.58 m bgs.		G#179869 A-1-b, SM WC=5.3%
							-0.82		Brown, moist, silty fine to medium SAND. ≈S2		
							-0.82		Brown, damp, fine to medium SAND, little silt. ≈S3		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
1											
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.
 Private waterline crosses road in vicinity of Stations 6+680 to 6+686.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+676, 1.9 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	SS		0.20 - 0.61			SSA	-0.20		PAVEMENT.	-0.20	
							-0.61		Brown, damp, silty fine to medium SAND, little gravel, little coarse sand, (Fill).	-0.61	
							-0.85		Brown, moist, silty fine to medium SAND. \approx S2	-0.85	
1							-1.52		Brown, damp, fine to medium SAND, little silt. \approx S3	-1.52	
2									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3											
4											
5											
6											
7											
8											

Remarks:

Stations and Offsets are from Surveyed Proposed CL.
 Private waterline crosses road in vicinity of Stations 6+680 to 6+686.

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 112

Location: Saco-Buxton, Maine

Boring No.: HB-SABU-104

PIN: 9493.10

Driller:	MaineDOT	Elevation (m):	Auger ID/OD:	125 mm Dia.
Operator:	E. Giguere	Datum:	Sampler:	Off Flights
Logged By:	G. Lidstone	Rig Type:	Hammer Wt./Fall:	N/A
Date Start/Finish:	3/14/07-3/14/07	Drilling Method:	Core Barrel:	N/A
Boring Location:	6+990, 1.8 m Rt.	Casing ID/OD:	Water Level*:	None Observed

Definitions:

D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger

Definitions:

S_u = Insitu Field Vane Shear Strength (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg hammer
WOR = weight of rods WOC = weight of casing

Definitions:

WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	-0.15		PAVEMENT.		
	S6		0.23 - 0.49				-0.23		GRAVEL, some dark brown, silty fine to coarse sand, (Fill)(Strong Odor).		
	S7		0.49 - 1.52				-0.49		GRAVEL, some brown, fine to coarse sand, trace silt, (Fill). ≈S4	G#179870 A-4, SM WC=19.7%	
1									Brown, moist, silty SAND, trace gravel.		
2							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3											
4											
5											
6											
7											
8											

Remarks:
Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+990, 0.1 m Rt.	Casing ID/OD: N/A	Water Level*: None Observed

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Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S8		0.29 - 0.64			SSA	-0.18		PAVEMENT.		
							-0.23		Unbound PAVEMENT.		
							-0.29		GRAVEL, some brown, fine to coarse sand, trace silt, (Fill).		
							-0.64		Brown, damp, SAND, some silt, some gravel (Fill).		
1									Brown, moist, silty fine SAND, trace medium sand. \approx S7		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+990, 1.4 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S9		0.24 - 0.61			SSA	-0.14	█	PAVEMENT.		
							-0.20	▨	Unbound PAVEMENT.		
							-0.24	▩	GRAVEL, some brown, fine to coarse sand, trace silt (Fill).		
							-0.61	▧	Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand (Fill) . ≈S8		
1							-0.61	▧	Brown, moist, silty fine SAND, trace medium sand. ≈S7		
							-1.52	▧	Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
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7											
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Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+110, 1.9 m Rt.	Casing ID/OD: N/A	Water Level*: 1.13 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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0						SSA	-0.17		PAVEMENT.		
	S10		0.24 - 0.73				-0.24		Unbound PAVEMENT.		
							-0.24		Brown, damp, silty fine to medium SAND, some gravel, trace coarse sand (Fill). ~S8		
	S11		0.73 - 1.13				-0.73		Brown, moist, silty fine to medium SAND.		
1							-0.73		Brown, wet, medium SAND, little fine sand, trace silt.		
	S12		1.13 - 1.52				-1.13				
							-1.13				
							-1.52				
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
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7											
8											

Remarks:
Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+110, 1.6 m Lt.	Casing ID/OD: N/A	Water Level*: 1.25 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S13		0.21 - 0.76			SSA	-0.17	█	PAVEMENT.		
							-0.21	▨	Unbound PAVEMENT.		
							-0.76	▩	Brown, damp, silty fine to medium SAND, some gravel, trace coarse sand (Fill). ≈S8		
1							-0.76	▩	Brown, moist, silty fine to medium SAND. ≈S11		
							-1.25	▩	Brown, wet, medium SAND, little fine sand, trace silt. ≈S12		
							-1.52	▩	Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+110, 0.3 m Lt.	Casing ID/OD: N/A	Water Level*: 1.22 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S14		0.20 - 0.70			SSA	-0.20		PAVEMENT.	G#179872 A-1-b, SM WC=5.2%	
							-0.70		Brown, damp, SAND, some silt, some gravel (Fill).		
1							-0.70		Brown, moist, silty fine to medium SAND. ≈S11		
							-1.22		Brown, wet, medium SAND, little fine sand, trace silt. ≈S12		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+660, 2.0 m Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	-0.17		PAVEMENT.		
	S15		0.21 - 0.64				-0.21		Unbound PAVEMENT.		
							-0.64		Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand (Fill). ~S14		
1	S16		0.64 - 1.52				-0.64		Brown, moist, silty fine SAND.		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+660, 0.9 m Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S17		0.21 - 0.67			SSA	-0.17	█	PAVEMENT.	G#179873 A-1-b, SM WC=5.2%	
							-0.21	▨	Unbound PAVEMENT.		
							-0.67	▧	Brown, damp, SAND, some gravel, some silt (Fill).		
1							-0.67	▩	Brown, moist, silty fine SAND. ≈S16		
2							-1.52	▽	Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+660, 1.2 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S18		0.21 - 0.73			SSA	-0.12 -0.21		PAVEMENT. Unbound PAVEMENT.		
							-0.73		Brown, damp, silty fine to medium SAND, some gravel, trace coarse sand (Fill). ~S14		
1							-0.73		Brown, moist, silty fine SAND. ≈S16		
2							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3											
4											
5											
6											
7											
8											

Remarks:
Stations and Offsets are from Surveyed Proposed CL.

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 112

Location: Saco-Buxton, Maine

Boring No.: HB-SABU-113

PIN: 9493.10

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+430, 1.8 m Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions:

D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger

Definitions:

S_u = Insitu Field Vane Shear Strength (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg hammer
WOR = weight of rods WOC = weight of casing

Definitions:

WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA			PAVEMENT.		
	S19		0.24 - 0.55				-0.20				
							-0.24		Unbound PAVEMENT.		
	S20		0.55 - 0.76				-0.55		Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand, (Fill).		
1	S21		0.76 - 1.52				-0.76		Brown, moist, silty fine to medium SAND.		
							-0.76		Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand. ≈ S17		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+430, 1.6 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S22		0.18 - 0.52			SSA	-0.12	█	PAVEMENT.		G#179874 A-1-b, SM WC=6.6%
							-0.18	▨	Unbound PAVEMENT.		
							-0.52	▧	Brown, damp, SAND, some gravel, some silt (Fill).		
							-0.64	▩	Brown, moist, silty fine to medium SAND. ≈S20		
							-0.64	▩	Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand. ≈S21		
1							-1.52	▽	Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/14/07-3/14/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+430, 0.6 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S23		0.21 - 0.49			SSA	-0.17		PAVEMENT.		
							-0.21		Unbound PAVEMENT.		
							-0.49		Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand (Fill).~S24		
							-0.61		Brown, moist, silty fine to medium SAND. ≈S20		
1							-0.61		Brown, damp, silty fine to medium SAND, little gravel, trace coarse sand. ≈S21		
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Stations and Offsets are from Surveyed Proposed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/21/07-3/21/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 10+750, 0.2 m Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S26		0.17 - 0.58			SSA	-0.17		PAVEMENT. Brown, damp, fine to coarse SAND, some gravel, trace silt. ≈S24		
							-0.58		Brown, damp, fine to medium SAND, trace silt. ≈S25		
1											
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Offsets have been changed from the original Field Logs to reflect Proposed Surveyed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/21/07-3/21/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 10+750, 1.3 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S27		0.15 - 0.55			SSA	-0.15		PAVEMENT. Brown, damp, fine to coarse SAND, some gravel, trace silt. ≈S24	-0.15	
							-0.55		Brown, damp, fine to medium SAND, trace silt. ≈S25	-0.55	
1											
							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	-1.52	
2											
3											
4											
5											
6											
7											
8											

Remarks:
 Offsets have been changed from the original Field Logs to reflect Proposed Surveyed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/21/07-3/21/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 11+280, 0.6 m Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S32		0.14 - 0.58			SSA	-0.14		PAVEMENT.	-0.14	
									Brown, moist, fine to coarse SAND, some gravel, little silt. ≈S28	-0.58	
1									Brown, damp, fine to coarse SAND, little silt, trace gravel. ≈S31	-0.58	
2									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	-1.52	
3											
4											
5											
6											
7											
8											

Remarks:
 Offsets have been changed from the original Field Logs to reflect Proposed Surveyed CL.

Driller: MaineDOT	Elevation (m):	Auger ID/OD: 125 mm Dia.
Operator: E. Giguere	Datum: NAVD 88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 3/21/07-3/21/07	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 11+520, 1.8 m Rt.	Casing ID/OD: N/A	Water Level*: 1.52 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	-0.17		PAVEMENT.		
	S33		0.17 - 0.40				-0.40		Dark brown, moist, fine to coarse SAND, some gravel, little silt. ≈S28		
	S34		0.40 - 1.52						Light brown, moist, fine to medium SAND, some silt, trace gravel.	G#207177 A-2-4, SM WC=15.0%	
1											
2							-1.52		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3											
4											
5											
6											
7											
8											

Remarks:
 Offsets have been changed from the original Field Logs to reflect Proposed Surveyed CL.

Driller: MaineDOT	Elevation (m): 70.10	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 11+660, 4.4 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S1					SSA	69.80	[Symbol]	Brown, damp, gravelly SAND, trace silt, (Fill).	G-105040 SW-SM, A-1-b wc=3.6% G-105041 SC-SM, A-4 wc=24.7% G-105042 SM, A-2-4 wc=6.3%	
	S2						69.25	[Symbol]	Brown, moist, soft silty SAND, trace gravel.		
	S3						68.58	[Symbol]	Brown, damp SAND, little gravel and silt.		
1.2						∇					
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											
Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.

Driller: MaineDOT	Elevation (m): 66.50	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 11+200, 4.2 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S4					SSA	66.35		Brown, dry, sandy GRAVEL, trace silt, (Fill).	G-105043 SM, A-2-4 wc=6.5%	
									Brown, damp, fine to coarse SAND, some gravel, little silt.		
1.2							64.98				
1.52									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 10 m UP AND 9.7 m IN FROM POLE 4/11/4000.

Driller: MaineDOT	Elevation (m): 64.40	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 10+700, 4.7 RT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information									Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
10.8											
12											
13.2											
14.4											
15.6											
16.8											
18											
19.2											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 18.8 m DOWN AND 9.7 m IN FROM POLE 46/4/20.

Driller: MaineDOT	Elevation (m): 63.40	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 10+200, 5.3 RT.	Casing ID/OD: N/A	Water Level*: NO WATER




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S5					SSA	63.25		Brown, dry, sandy GRAVEL, trace silt, (Fill). Brown, damp, fine to medium SAND, trace gravel and silt .	G-105044 SW-SM, A-2-4 wc=5.1%	
1.2							61.87		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 28.8 m DOWN AND 1.0 m IN FROM POLE CMP545.

Driller: MaineDOT	Elevation (m): 63.10	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+700, 4.7 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S_u = Insitu Field Vane Shear Strength (kPa) T_v = Pocket Torvane Shear Strength (kPa) q_p = Unconfined Compressive Strength (Pa) $S_u(\text{lab})$ = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	S6						62.89		Brown, dry, sandy GRAVEL, trace silt, (Fill).	G-105045 SM, A-2-4 wc=14.0%	
									Brown, damp, silty fine to coarse SAND, trace gravel.		
1.2							61.73				
									Bottom of Exploration at 1.37 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 35.9 m UP AND 1.0 m IN FROM POLE 4/35.

Driller: MaineDOT	Elevation (m): 61.80	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+200, 4.0 RT.	Casing ID/OD: N/A	Water Level*: NO WATER




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA			Brown, dry, sandy GRAVEL, trace silt, (Fill).		
	S7						61.13		Brown, moist, soft sandy SILT, trace clay.	-0.67	
1.2	S8						60.64		Brown-gray, mottled, dry fine sandy SILT, trace clay.	-1.16	
							60.28			-1.52	
2.4									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 2.7 m UP AND 1.6 m IN FROM J69/44.

Driller: MaineDOT	Elevation (m): 58.20	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 8+700, 5.6 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA			Brown, dry, sandy GRAVEL, trace silt, (Fill).		
							57.62		WEATHERED ROCK.	-0.58	
							57.44		Bottom of Exploration at 0.76 m below ground surface. REFUSAL	-0.76	
1.2											
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 15.5 m DOWN AND 1.7 m IN FROM POLE 77 1/2 /53.

Driller: MaineDOT	Elevation (m): 39.30	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 8+200, 4.8 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA			Brown, dry, sandy GRAVEL, trace silt, (Fill).		
	S9						38.75		Brown, damp, soft sandy SILT, trace clay.	0.55	
	S10						38.33		Brown, moist, silty fine SAND.	0.98	
1.2							37.78				
									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 14.3 m UP AND 10.2 m IN FROM 278/502.

Driller: MaineDOT	Elevation (m): 42.90	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+700, 3.6 RT.	Casing ID/OD: N/A	Water Level*: WATER @ 2.6 m

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S_u = Insitu Field Vane Shear Strength (kPa) T_v = Pocket Torvane Shear Strength (kPa) q_p = Unconfined Compressive Strength (Pa) $S_u(\text{lab})$ = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	42.11		Brown, dry, sandy GRAVEL, trace silt, (Fill).		
1.2							40.34		Brown, moist, soft sandy SILT, trace clay.	SIM. TO S9	
2.4							40.04		Gray, wet, silty fine SAND.		
3.6									Bottom of Exploration at 2.87 m below ground surface. REFUSAL		
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 10.0 m DOWN AND 4.4 m IN FROM POLE J267/115.

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 112

Location: Saco-Buxton, Maine

Boring No.: HB-SABU-210

PIN: 9493.10

Driller: MaineDOT	Elevation (m): 43.10	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+680, 2.0 RT.	Casing ID/OD: N/A	Water Level*: WATER @ 2.3 m

Definitions:

D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger

Definitions:

S_u = Insitu Field Vane Shear Strength (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg hammer
WOR = weight of rods WOC = weight of casing

Definitions:

WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0							42.94		PAVEMENT		
									Brown, dry, sandy GRAVEL, few cobbles, trace silt, (Fill).	-0.16	
							42.34		Brown, moist, soft sandy SILT, trace clay.	-0.76	
1.2											
							40.75		Gray, wet, silty fine SAND.	-2.35	
2.4							40.51		Bottom of Exploration at 2.59 m below ground surface. REFUSAL	-2.59	
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
9.2 m UP AND 6.0 m IN FROM POLE J267/115.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Driller: MaineDOT	Elevation (m): 49.80	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+200, 2.7 LT.	Casing ID/OD: N/A	Water Level*: NO WATER

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	49.63		PAVEMENT	-0.17	
									Brown, dry, sandy GRAVEL, few cobbles, trace silt, (Fill).	-0.70	
									Brown, moist, soft sandy SILT, trace clay.	-1.07	
1.2						↙	48.73		Brown, damp, fine to medium SAND, trace silt.	-1.52	
							48.28		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 2.2 m DOWN AND 13.4 m IN FROM 258/J258.

Driller: MaineDOT	Elevation (m): 49.60	Auger ID/OD: 100 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: Off Flights
Logged By: G. Lidstone	Rig Type: CME45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/31/01-7/31/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+700, 3.9 RT.	Casing ID/OD: N/A	Water Level*: NO WATER




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	49.39		Brown, dry, sandy GRAVEL, trace silt, (Fill).		
									Brown, dry, silty fine to coarse SAND, some gravel.	-0.21	
1.2							48.50		Brown, dry, fine to medium SAND, trace silt.	-1.10	
							48.08			-1.52	
2.4									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											
9.6											

Remarks:
 STATIONING ON RTE. 112 RUNS APPROX. SOUTH TO NORTH.
 15.6 m UP AND 2.4 m IN FROM 247/247.

Driller: MaineDOT	Elevation (m): 49.00	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 6+569, 2.5 Rt.	Casing ID/OD: N/A	Water Level*: None Observed




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	48.83		PAVEMENT.	-0.17	
							48.53		Brown, medium sandy GRAVEL.	-0.47	
									Light brown, dry, fine to medium SAND, trace silt.		
1.2						▽	47.50			-1.50	
									Bottom of Exploration at 1.50 m below ground surface. No Refusal		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Driller: MaineDOT	Elevation (m): 49.19	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 7+260, 2.6 Rt.	Casing ID/OD: N/A	Water Level*: 1.1 m bgs.




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	49.02		PAVEMENT.		
							48.59		Brown, medium to coarse sandy GRAVEL.	-0.17	
									Brown, medium to coarse SAND, trace gravel.	-0.61	
1.2						▽	47.70		Bottom of Exploration at 1.50 m below ground surface. No Refusal	-1.50	
2.4											
3.6											
4.8											
6.0											
7.2											
8.4											
9.6											

Remarks:

Driller: MaineDOT	Elevation (m): 41.10	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 8+260, 1.9 Rt.	Casing ID/OD: N/A	Water Level*: 1.1 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	---	--

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	40.94		PAVEMENT.		
									Brown, medium to coarse sandy GRAVEL.	-0.16	
							40.38		Grey, moist, fine SAND, little silt.	-0.72	
1.2						▽	39.60		Bottom of Exploration at 1.50 m below ground surface. No Refusal	-1.50	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 112

Location: Saco-Buxton, Maine

Boring No.: FWD7800

PIN: 9493.10

Driller: MaineDOT	Elevation (m): 58.19	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 8+960, 2.2 Rt.	Casing ID/OD: N/A	Water Level*: 1.1 m bgs.

Definitions:

D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger

Definitions:

S_u = Insitu Field Vane Shear Strength (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_{u(lab)} = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg hammer
WOR = weight of rods WOC = weight of casing

Definitions:

WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test




Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	58.02		PAVEMENT.		
							57.92		Black, penetrated, gravelly SAND.	-0.17	
							57.47		Brown, medium to coarse sandy GRAVEL.	-0.27	
									Grey, moist, plastic, clayey SILT, trace fine sand.	-0.72	
1.2											
							56.69		Bottom of Exploration at 1.50 m below ground surface. No Refusal	-1.50	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

Driller: MaineDOT	Elevation (m): 62.80	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 9+760, 2.2 Rt.	Casing ID/OD: N/A	Water Level*: None Observed




Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _{u(lab)} = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	62.62		PAVEMENT.		
									Brown, medium to coarse sandy GRAVEL.	-0.18	
							61.90		Light brown, dry, fine to medium SAND, trace silt.	-0.90	
1.2						▽	61.28		Bottom of Exploration at 1.52 m below ground surface. No Refusal	-1.52	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Driller: MaineDOT	Elevation (m): 61.40	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 9+860, 2.0 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	61.26		PAVEMENT.		
									Brown, medium to coarse sandy GRAVEL.	-0.14	
							60.50		Light brown, dry, fine to medium SAND, trace silt.	-0.90	
1.2						▽	59.88		Bottom of Exploration at 1.52 m below ground surface. No Refusal	-1.52	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Driller: MaineDOT	Elevation (m): 67.40	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NAVD 88	Sampler: N/A
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/7/00-11/7/00	Drilling Method: Solid Stem Augers	Core Barrel: N/A
Boring Location: 11+360, 2.0 Rt.	Casing ID/OD: N/A	Water Level*: 0.6 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	67.23		PAVEMENT.		
									Brown, medium to coarse sandy GRAVEL, trace silt.	-0.17	
							66.55		Light brown, fine to medium SAND, trace silt.	-0.85	
1.2						∇	65.88		Bottom of Exploration at 1.52 m below ground surface. No Refusal	-1.52	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

FWD Testing Reference Locations
9493.10 Route #112 - Saco/Buxton

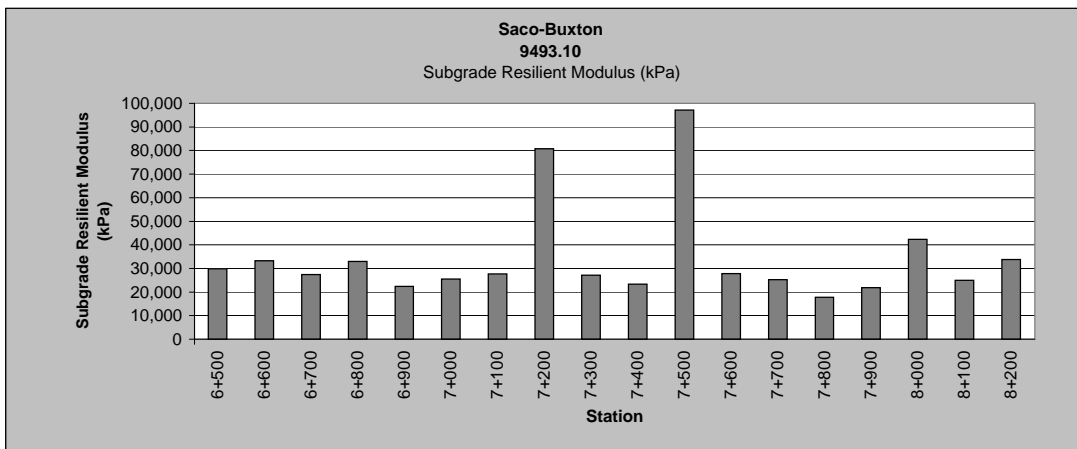
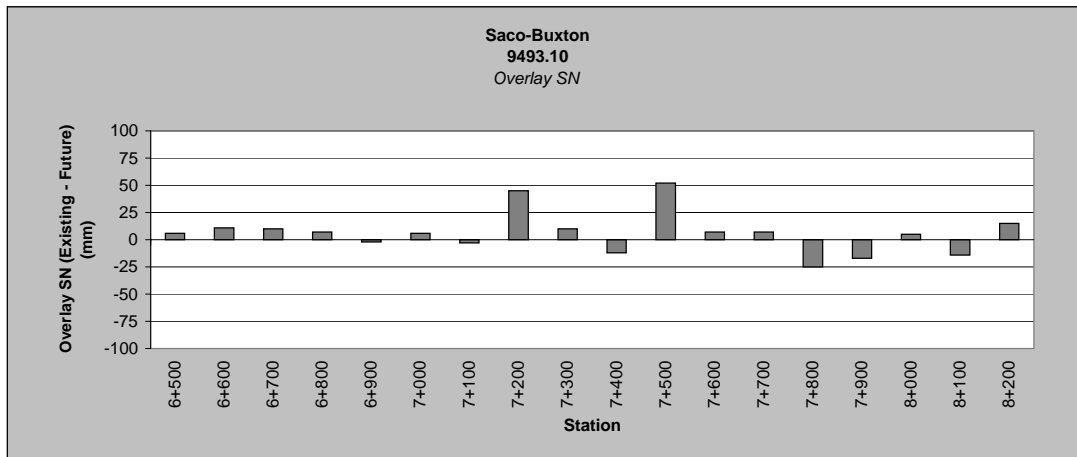
<u>Station</u>	<u>Object/Road</u>
5.055	Heath Rd.
6.041	Rocky Hill Rd.
6.454	Pavement Change
6.682	Pavement Change
6.957	Harvest Circle (?)
7.445	Pavement Change
7.927	Pavement Change
8.179	Grant Rd.
9.556	Mullberry St.
10.357	Squire Libby Rd.
10.600	Culvert
11.662	Pavement Change
	End at Int. of 202/4

Saco-Buxton
9493.10
Route #112

May 13, 2008

Station (Meters)	Existing Structural Number (mm)	Future Traffic Structural Number (mm)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (mm)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
6+500	120	114	6	-	475,708	29,851	170	640
6+600	121	110	11	-	485,215	33,296	170	640
6+700	127	117	10	-	567,151	27,412	170	640
6+800	117	110	7	-	445,653	32,914	170	640
6+900	123	125	-2	5	516,175	22,343	170	640
7+000	126	120	6	-	555,591	25,511	170	640
7+100	114	117	-3	7	276,029	27,728	170	730
7+200	125	80	45	-	366,025	80,734	170	730
7+300	127	117	10	-	384,372	27,204	170	730
7+400	111	123	-12	27	251,745	23,391	170	730
7+500	127	75	52	-	381,575	97,155	170	730
7+600	124	117	7	-	357,295	27,767	170	730
7+700	127	120	7	-	561,862	25,290	170	640
7+800	110	135	-25	57	371,626	17,722	170	640
7+900	109	126	-17	39	359,042	21,854	170	640
8+000	106	101	5	-	332,239	42,303	170	640
8+100	107	121	-14	32	341,632	24,907	170	640
8+200	124	109	15	-	525,131	33,748	170	640

* For actual Gravel Depths, see attached logdraft forms

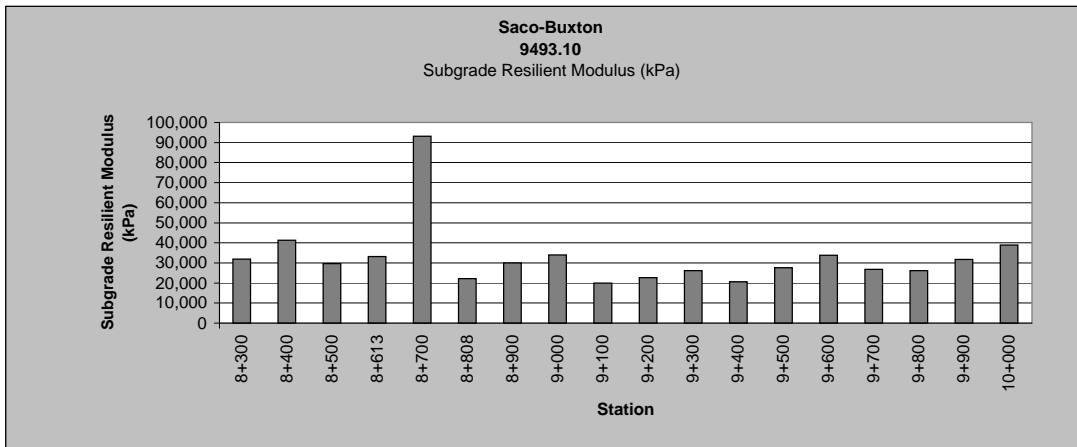
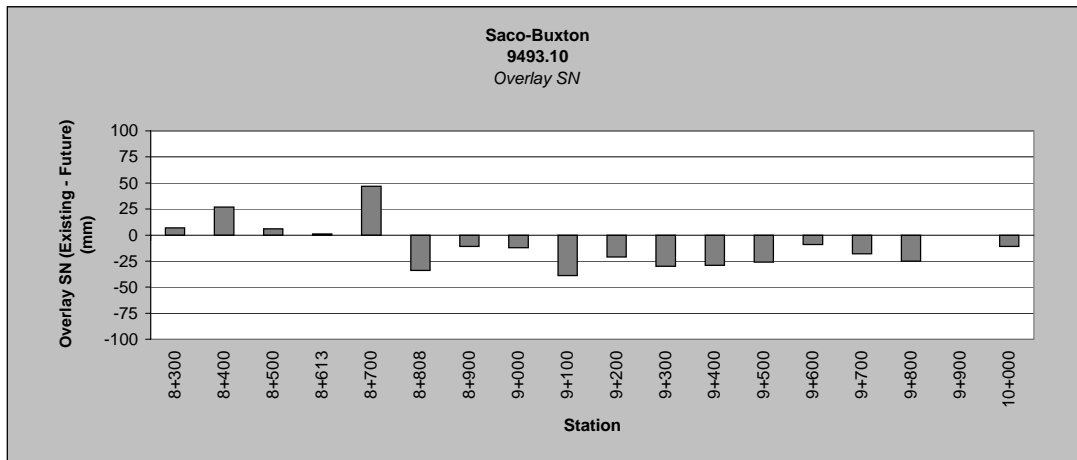


Saco-Buxton
9493.10
Route #112

May 13, 2008

Station (Meters)	Existing Structural Number (mm)	Future Traffic Structural Number (mm)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (mm)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
8+300	118	111	7	-	448,628	31,843	170	640
8+400	129	102	27	-	593,492	41,310	170	640
8+500	120	114	6	-	474,094	29,674	170	640
8+613	111	110	1	-	378,635	33,164	170	640
8+700	123	76	47	-	515,332	93,090	170	640
8+808	91	125	-34	77	327,673	22,228	200	550
8+900	103	114	-11	25	476,338	30,045	200	550
9+000	97	109	-12	27	396,947	33,970	200	550
9+100	91	130	-39	89	331,145	19,857	200	550
9+200	104	125	-21	48	488,641	22,616	200	550
9+300	89	119	-30	68	307,396	26,184	200	550
9+400	99	128	-29	-	420,609	20,576	200	550
9+500	91	117	-26	59	325,684	27,636	200	550
9+600	100	109	-9	20	431,048	33,885	200	550
9+700	100	118	-18	41	440,427	26,725	200	550
9+800	94	119	-25	57	358,065	26,155	200	550
9+900	111	111	0	-	596,512	31,772	200	550
10+000	93	104	-11	25	346,033	38,905	200	550

* For actual Gravel Depths, see attached logdraft forms

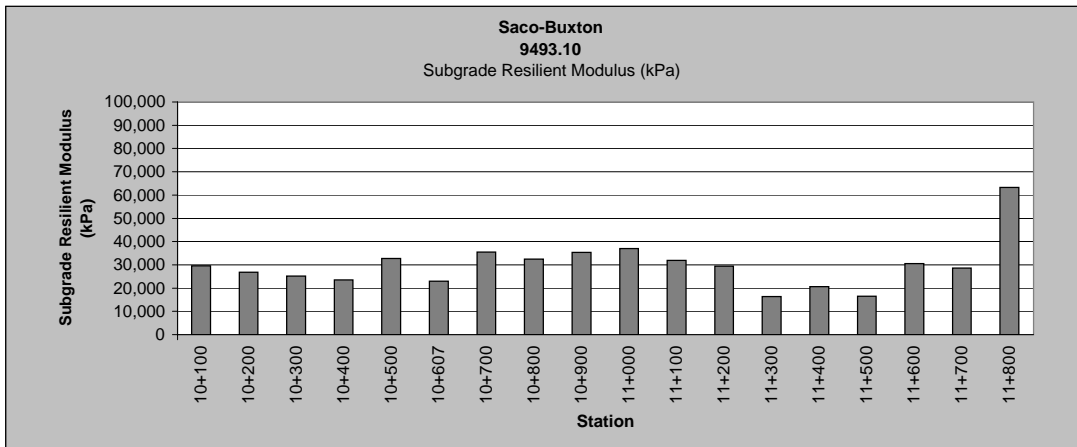
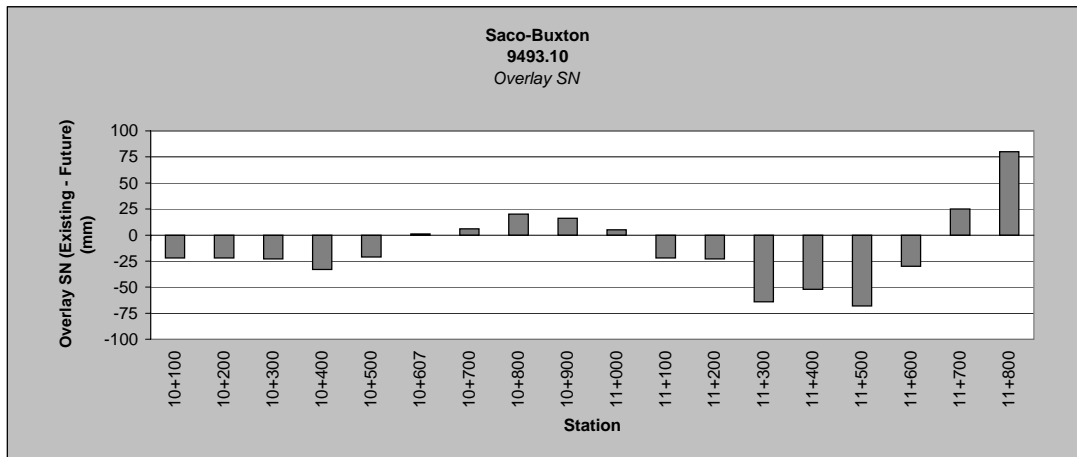


Saco-Buxton
9493.10
Route #112

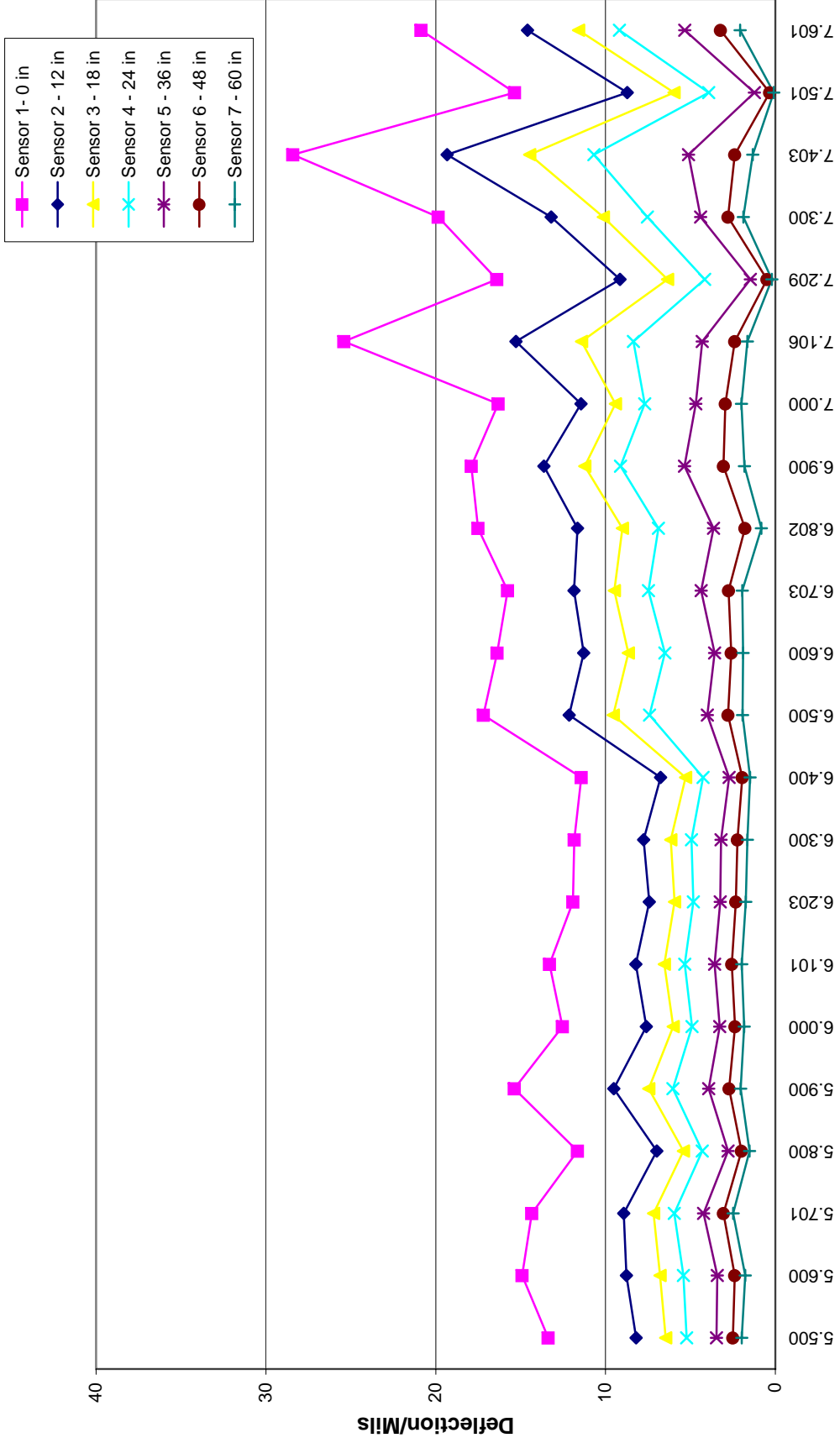
May 13, 2008

Station (Meters)	Existing Structural Number (mm)	Future Traffic Structural Number (mm)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (mm)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
10+100	92	114	-22	50	335,276	29,584	200	550
10+200	96	118	-22	50	383,210	26,846	200	550
10+300	97	120	-23	52	392,892	25,189	200	550
10+400	90	123	-33	75	320,240	23,574	200	550
10+500	89	110	-21	48	304,553	32,730	200	550
10+607	125	124	1	-	629,922	23,039	150	610
10+700	113	107	6	-	457,268	35,447	150	610
10+800	131	111	20	-	722,835	32,475	150	610
10+900	124	108	16	-	603,918	35,391	150	610
11+000	111	106	5	-	432,366	36,998	150	610
11+100	89	111	-22	50	357,936	31,945	140	520
11+200	91	114	-23	52	384,457	29,394	140	520
11+300	74	138	-64	145	460,036	16,301	170	400
11+400	76	128	-52	118	500,356	20,664	170	400
11+500	71	139	-68	155	411,615	16,470	170	400
11+600	84	114	-30	68	663,307	30,481	170	400
11+700	141	116	25	-	463,442	28,633	175	760
11+800	169	89	80	-	801,299	63,249	175	760

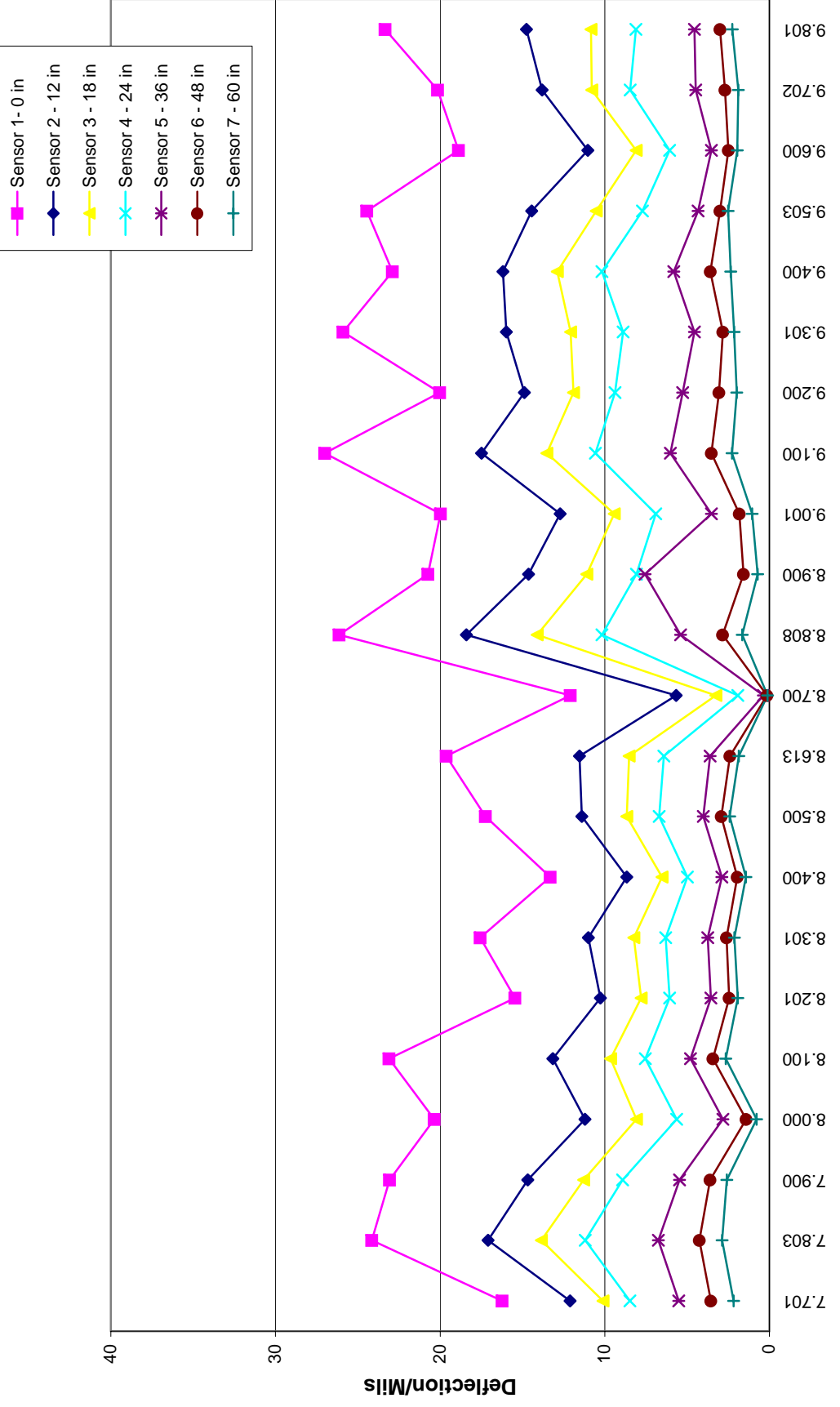
* For actual Gravel Depths, see attached logdraft forms



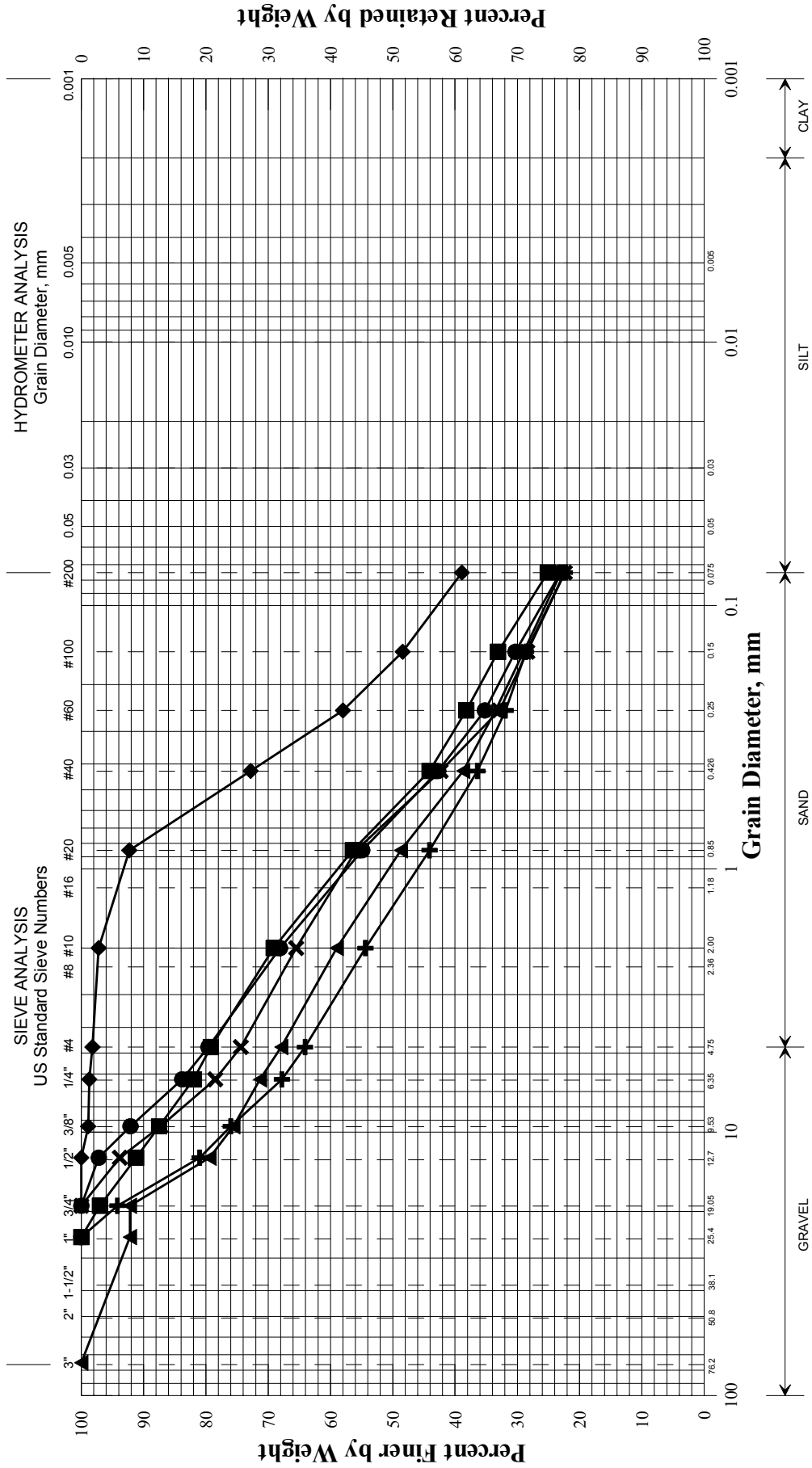
PIN 9493.10
Saco-Buxton, Rt. 112



PIN 9493.10
Saco-Buxton, Rt. 112



State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE

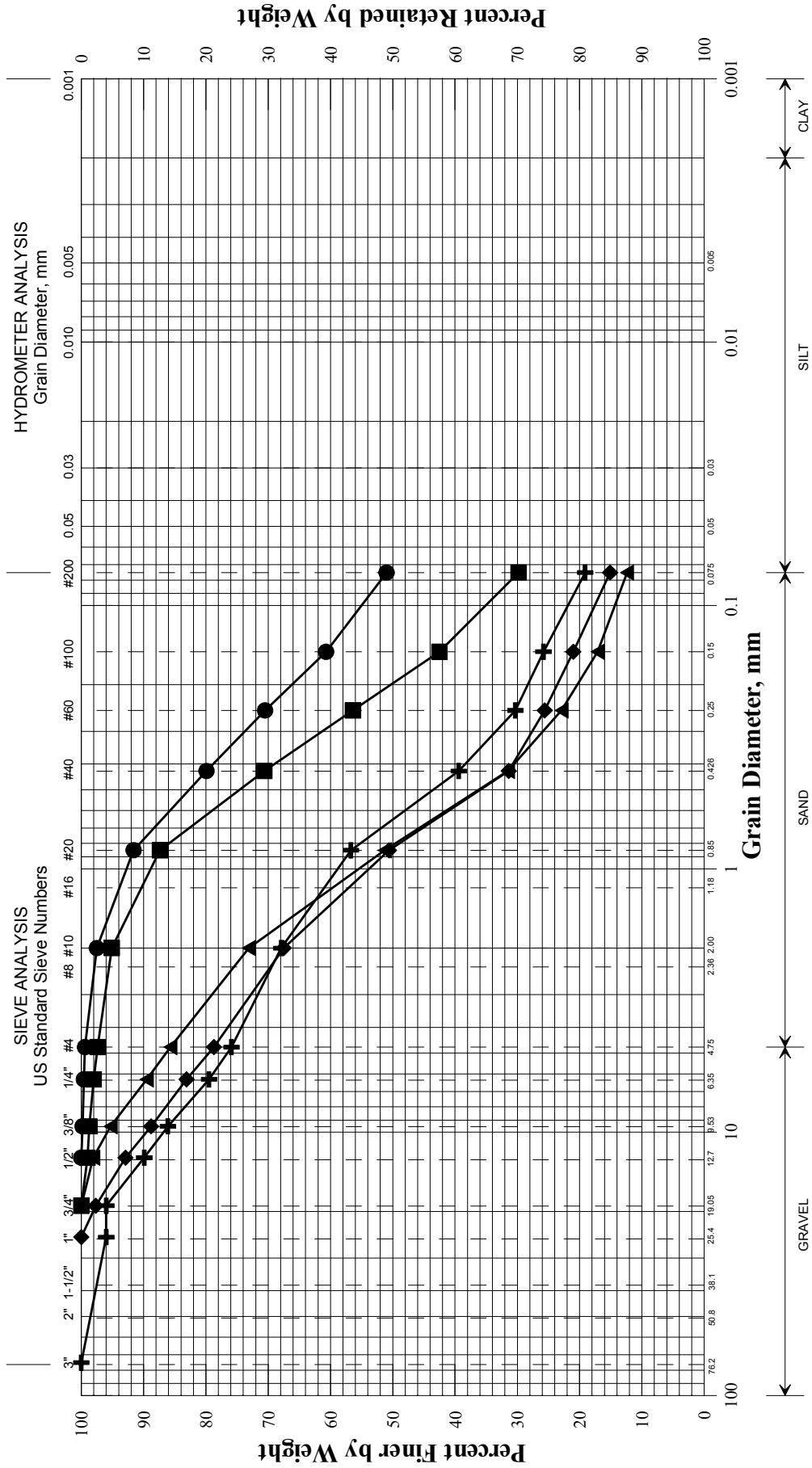


UNIFIED CLASSIFICATION

Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+ HB-SABU-102/S4	6+676	CL	0.18-0.46	Gravelly SAND, some silt.	5.3			
◆ HB-SABU-104/S7	6+990	1.8 RT	0.49-1.52	Silty SAND, trace gravel.	19.7			
■ HB-SABU-105/S8	6+990	0.1 RT	0.29-0.64	SAND, some silt, some gravel.	5.2			
● HB-SABU-109/S14	7+110	0.3 LT	0.2-0.7	SAND, some silt, some gravel.	5.2			
▲ HB-SABU-111/S17	7+660	0.9 RT	0.21-0.67	SAND, some gravel, some silt.	5.2			
× HB-SABU-114/S22	9+430	1.6 LT	0.18-0.52	SAND, some gravel, some silt.	6.6			

009493.10	PIN
Saco, Buxton	Town
WHITE, TERRY A	Reported by/Date
	5/15/2007

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE

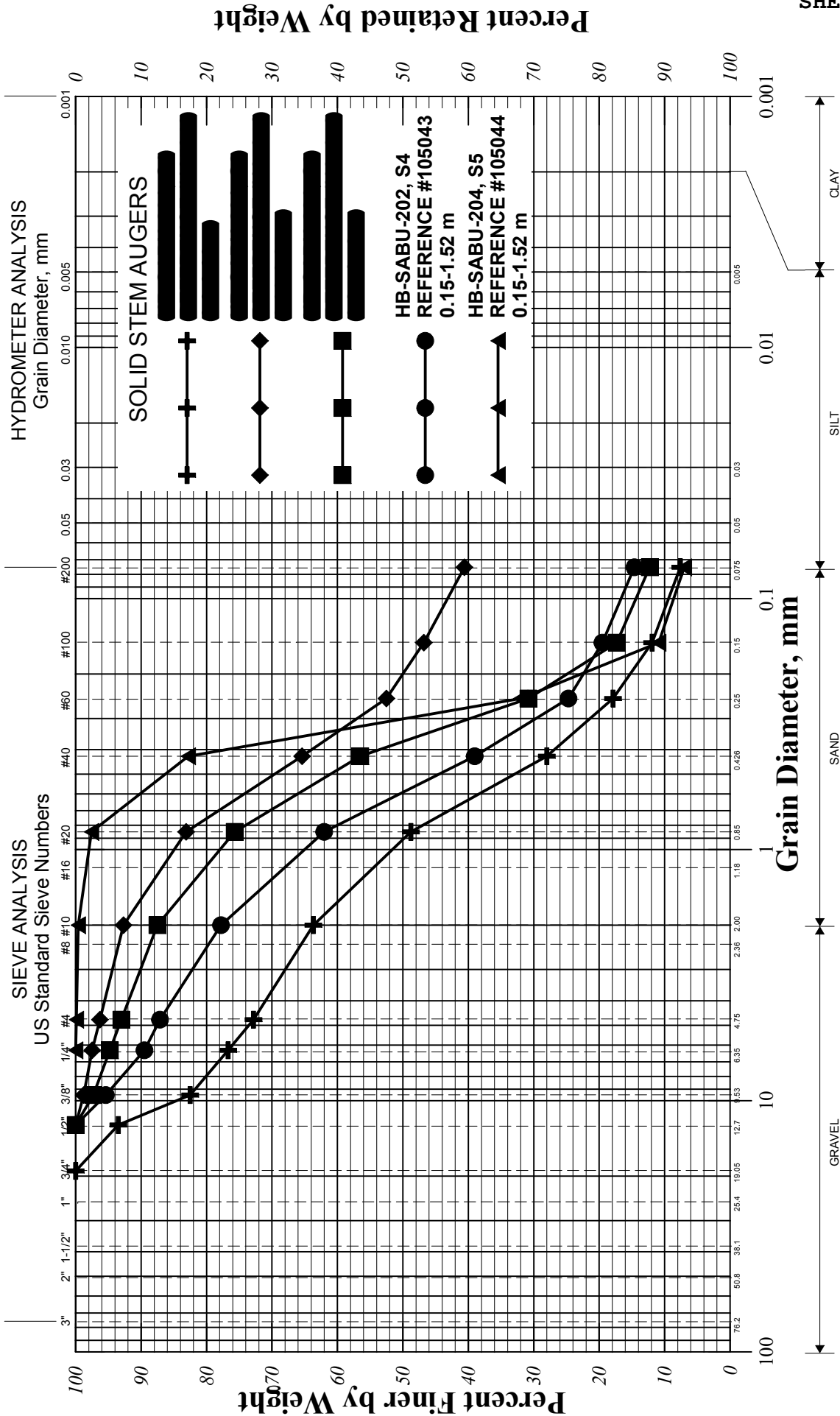


UNIFIED CLASSIFICATION

Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-SABU-114A/S24	1.7 RT	0.15-0.61	SAND, some gravel, little silt.	4.5			
◆	HB-SABU-117/S28	2.4 RT	0.14-0.52	SAND, some gravel, little silt.	4.3			
■	HB-SABU-120/S34	1.8 RT	0.4-1.52	SAND, some silt, trace gravel.	15.0			
●	HB-SABU-121/S35	0.3 RT	0.3-1.52	Sandy SILT, trace gravel.	15.7			
▲	HB-SABU-122/S36	1.2 LT	0.15-0.4	SAND, little gravel, little silt.	6.9			
×								

009493.10	PIN
Saco, Buxton	Town
WHITE, TERRY A	Reported by/Date
5/15/2007	

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE

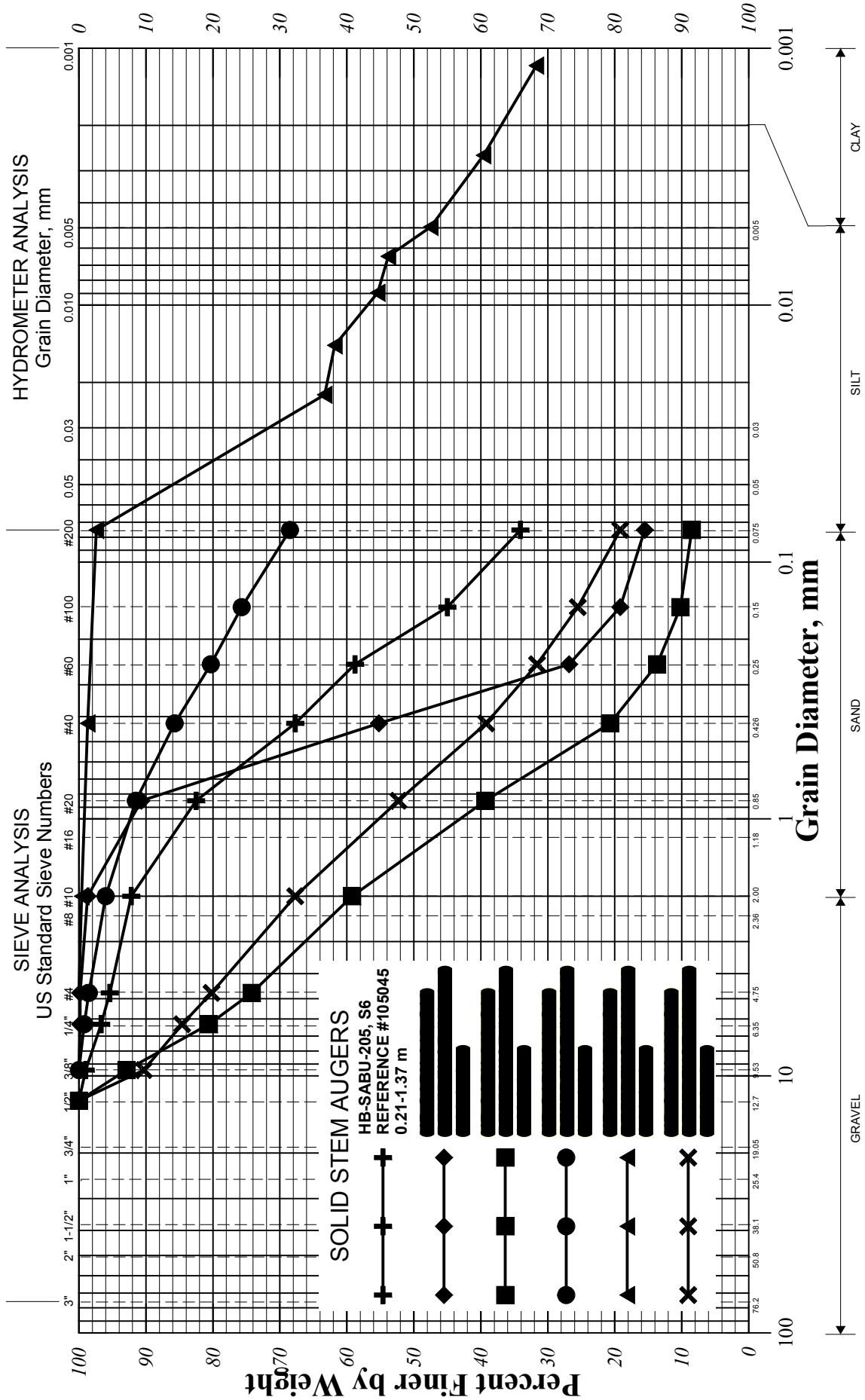


Reported by: T.White
Date: 8/21/01

PIN: 9493.00
Town: Saco - Buxton

AASHTO CLASSIFICATION

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



Reported by: T.White
Date: 8/22/01

PIN: 9493.00
Town: Saco - Buxton

Bar Mills Quadrangle, Maine

Surficial geologic mapping by
Lewis E. Hunter

Digital cartography by:
Robert G. Marvinsky
State Geologist

Cartographic design and editing by:
Robert D. Tucker

Funding for the preparation of this map was provided in part by the U.S. Geological Survey
Cooperative Geologic Mapping (CGMP) Program, Cooperative Agreement No. 14-00-001-140301.



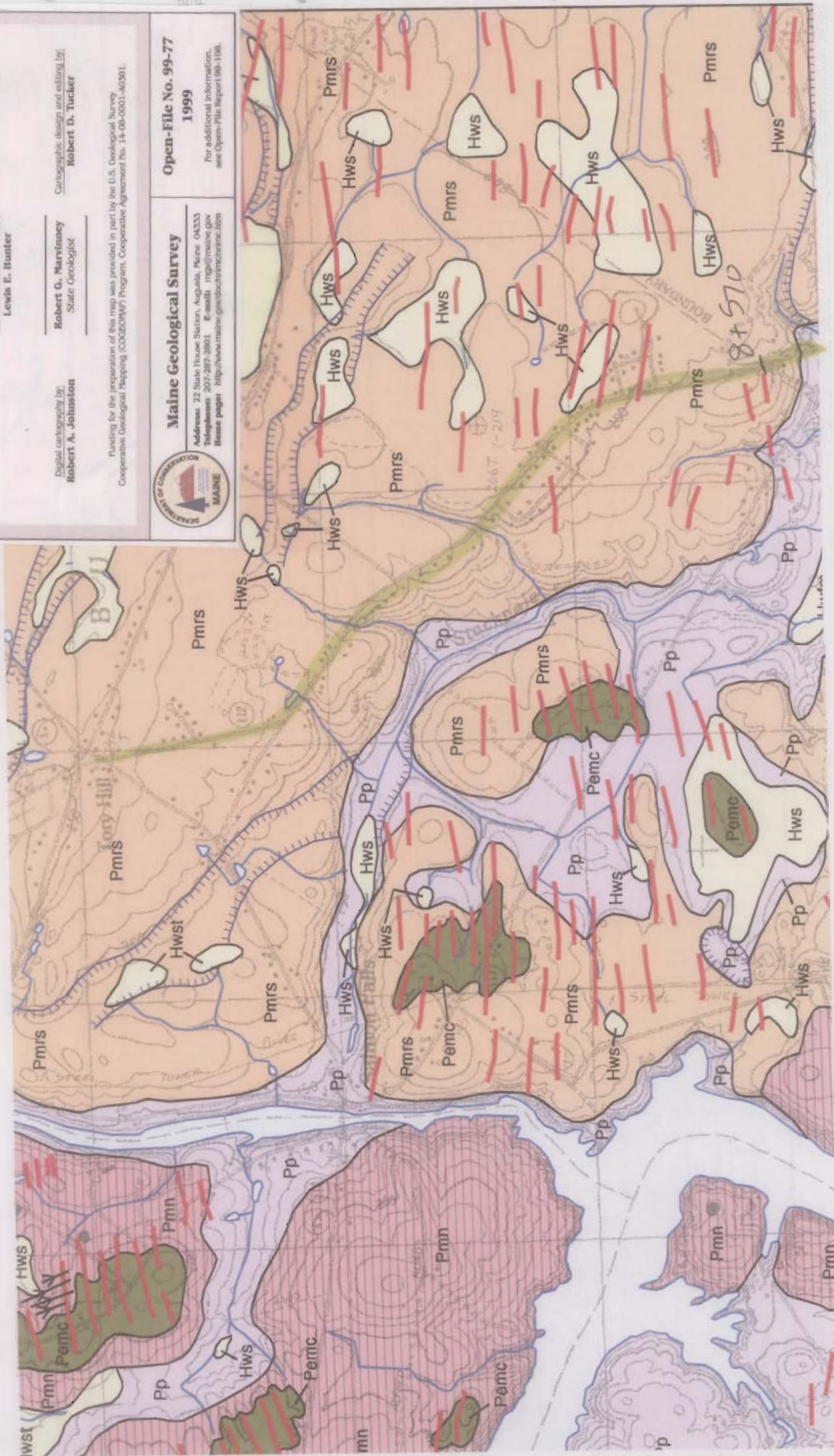
Maine Geological Survey

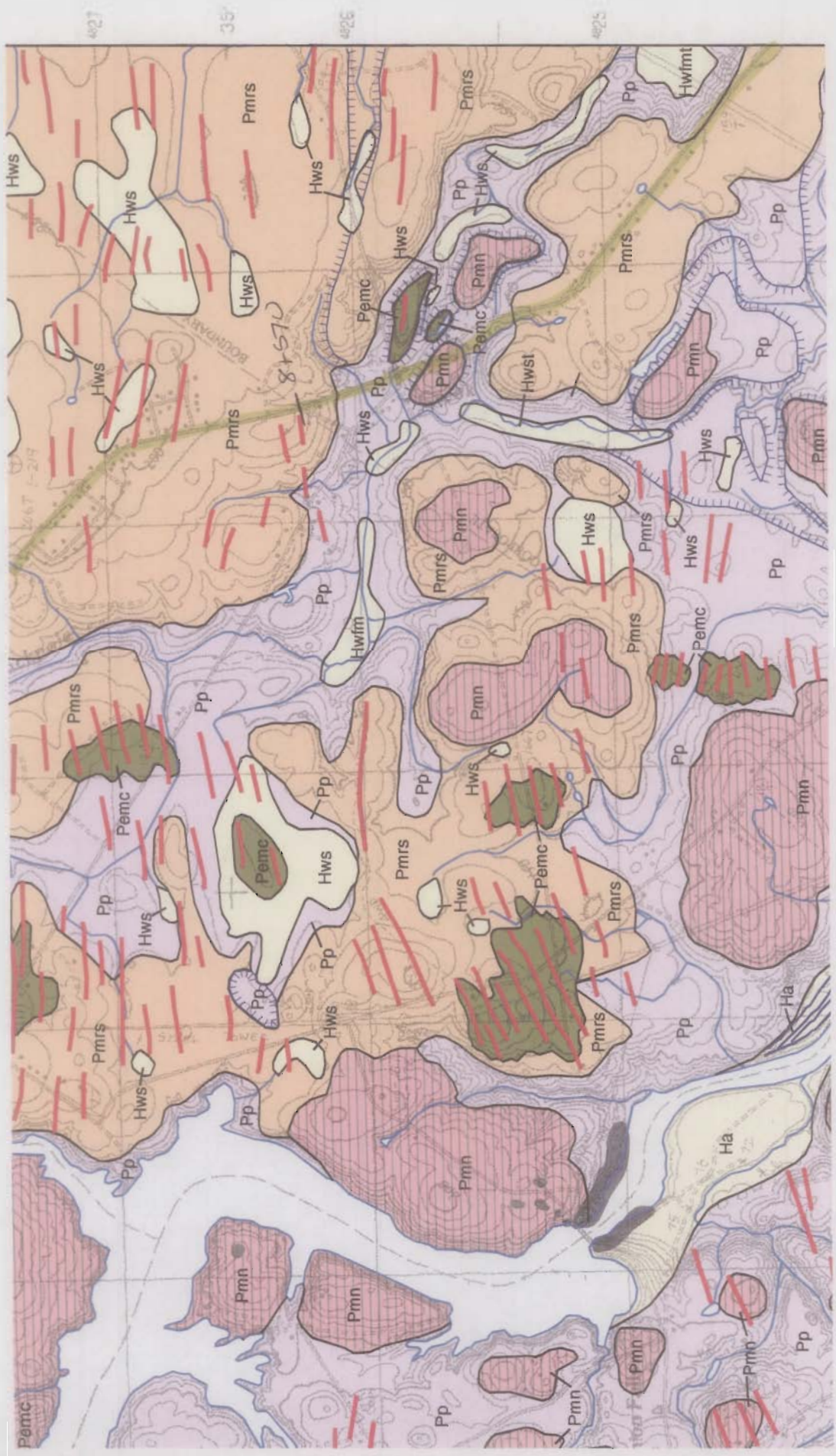
Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-5200
Website pages: <http://www.maine.gov/sof/geoscience.htm>

Open-File No. 99-77

1999

For additional information,
see Open-File Report 99-100.





USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other surficial features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

1. Hunter, L. E., 1999, Surficial geology of the Bar Mills 7.5-minute quadrangle, York County, Maine: Maine Geological Survey, Open-File Report 99-108, 9 p.
2. Hunter, L. E., 1998, Surficial materials of the Bar Mills quadrangle, Maine: Maine Geological Survey, Open-File Map 98-179.
3. Neil, C. D., 1998, Significant sand and gravel aquifers of the Bar Mills quadrangle, Maine: Maine Geological Survey, Open-File Map 98-145.
4. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
5. Thompson, W. B. and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale: 500,000.
6. Thompson, W. B., Crossen, K. J., Borns, H. W., Jr., and Anderson, B. G., 1989, Glaciation in Maine and their relation to late Pleistocene-Holocene crustal movements. In Anderson, W. A., and Borns, H. W., Jr. (eds.), Neotectonics of Maine: Maine Geological Survey, Bulletin 40, p. 43-67.

End moraine complex - Coarse till, gravel, sand, and silt associated with ridges and mounds that formed at or near the front of a retreating marine-based glacier. Mapped in areas of closely spaced (DoGeer) end moraines. Sediments are commonly deformed.

Esker - Sinuous ridges comprised of stratified, coarse sand and gravel. Commonly found at the heads of large glacial marine deltas (Pnd). Deposited in subglacial and englacial meltwater tunnels.

Ice-contact deposits - Sand and gravel deposited adjacent to glacial ice.

Till - Poorly sorted mixture of gray to gray-brown silt, sand, and gravel. Forms a blanket deposit over bedrock and is inferred to underlie younger sediments where not exposed at the surface. Commonly less than 3 m thick over bedrock highs.

Bedrock outcrop/thin-drift areas - Ruled pattern indicates area where surficial sediments are generally less than 3 m thick. Gray areas and dots show individual outcrops.

Artificial fill - man-made landfill.

Contact - Boundary between map units. Dashed where very approximate.

Flutes - Arrows indicate inferred flow direction of glacial ice (observed on aerial photos).

Scarp - Miscellaneous stream and river escarpments.

Marine crest - Linear or sinuous moraine ridges outcropping below the marine limit. Composed of till, gravel, sand, and silt deposited at or near margin of retreating glacier. Bats point in direction of former ice flow.

Kettle - Circular depressions in drift formed by ice-block meltout.

Meltwater channel - Channel eroded by glacial meltwater stream. Arrow shows inferred direction of former stream flow.

Mecander scrolls - Flood plain deposits (observed on aerial photographs).

Ice flow indicators - Azimuth of glacial striations and rocks in outcrops.

Ice flow indicators - Azimuth of crescentic gouges.

*NOTE: Wetland symbols followed by "I" indicate areas where peat deposits probably do not constitute a significant commercial resource, either because they are thin (< 1.5 m), or they have an ash content greater than 25 percent. Symbols followed by "Y" indicate peat deposits that are thicker (generally > 1.5 m), with ash content less than 25 percent, and thus may be suitable for commercial applications.

Ha - Alluvium - Well-sorted and stratified sand, silt, and gravel. Comprises flood plains along present streams and rivers.

Hwa - Swamps* - Muck, peat, silt, and sand (undifferentiated) in poorly drained areas. Commonly associated with standing water.

Hwfm - Freshwater marsh* - Poorly drained freshwater grassland.

Hst - Stream terrace deposits - Sand and gravel deposited on former flood plains in late-glacial (Qst) or postglacial (Hst) time.

Qst - Nearshore deposits - Generally poorly-sorted mixture of silt, sand, and gravel formed by wave reworking of glacial sediments during marine regression. Variable thickness; generally less than 3 m. Associated with paleobathymetric high.

Pms - Marine regressive sand deposits - Massive to stratified, well-sorted, gray to yellow-brown sand. Overlies Pp with gradational or interdigitated transition zone. Deposited through reworking of older glacial sediments during regressive phase of marine submergence.

Pms - Presumpscot Formation - Laminated to massive, gray to green-gray silt and clay. Occurs as a blanket deposit of variable thickness from 0 to 50 meters over older glacial deposits. May locally contain boulders, sand, and gravel. Deposited during period of late-glacial marine submergence.

Pp - Glaciofluvial outwash - Stratified sand, gravel, and some silt deposited by glacial meltwater streams.

Pp - Glaciomarine delta (undifferentiated) - Generally stratified fine to coarse sand and gravel. Surface topography is flat or slopes gently away from the paleo-ice margin. Formed by glacial stream discharge into late-glacial sea. Commonly exhibit kettles at the head-of-outwash marking former ice position.

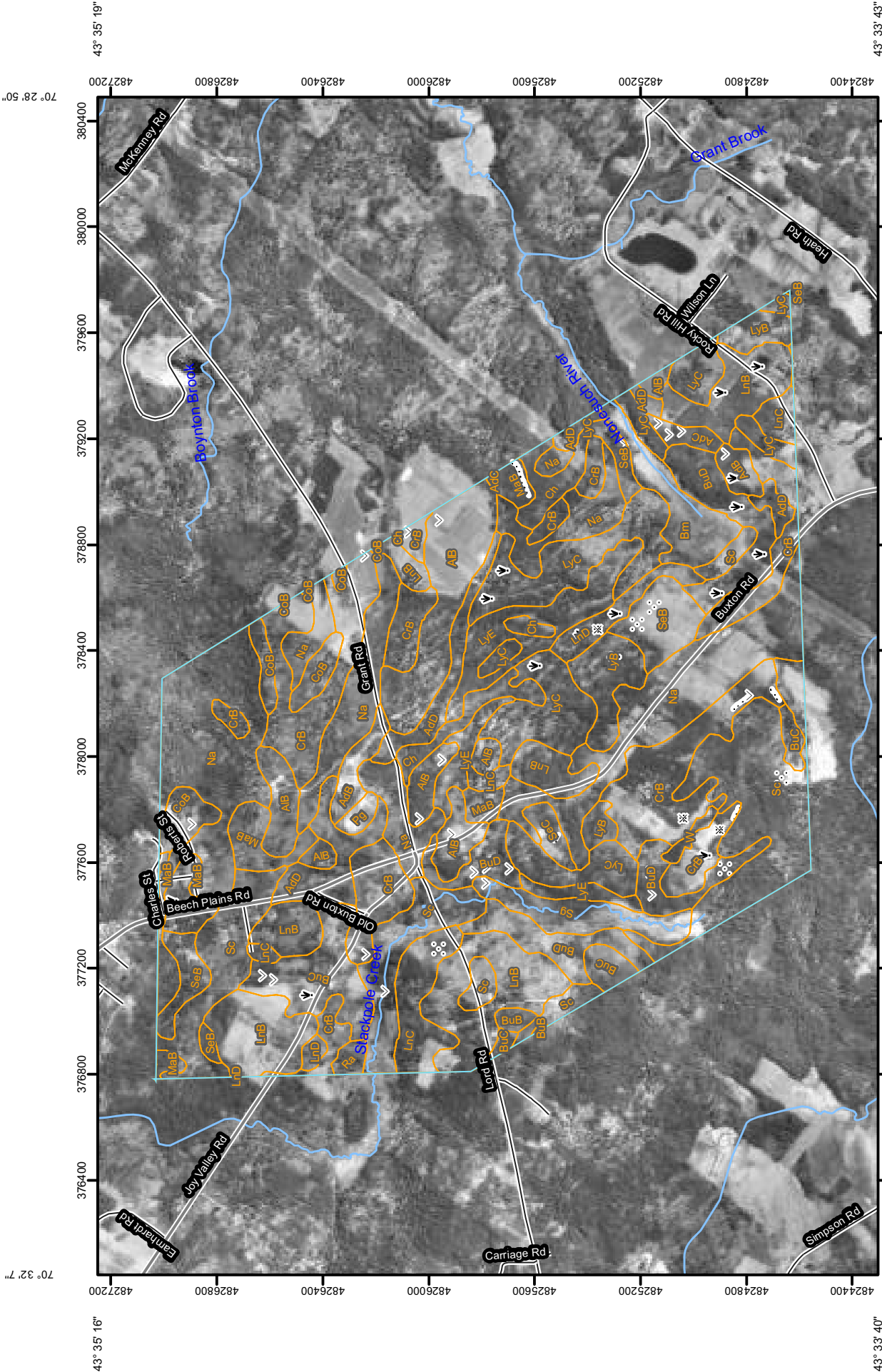
Ppd1 - Lyman Delta sequence - Glaciomarine delta sequence that constitutes first morphologic sequence in Bar Mills quadrangle. Deposited while ice margin was located at the southern portion of the Massachusetts Experimental Forest. The delta was fed by a chain of beaded eskers.

Ppd2 - Hollis Delta sequence - Second morphologic sequence, deposited while the ice margin was located in the vicinity just south of Bear Hill. The delta was fed by an esker chain to the west near the town of Waterboro.

Ppd - Glaciomarine delta forests - Slope dipping (10-35°) stratified sand and gravel that grades into Pp down a slope. Located along the seaward margin of Pnd, where the delta front slopes eastward, and also exposed where channels have been eroded in the deltas. The topset-forest contact occurs at approximately 80 m above present sea level, marking the maximum limit of marine submergence.

Pmf - Glaciomarine fan - Sand and gravel deposited in the sea as subaqueous fans at the margin of the last glacial ice sheet.

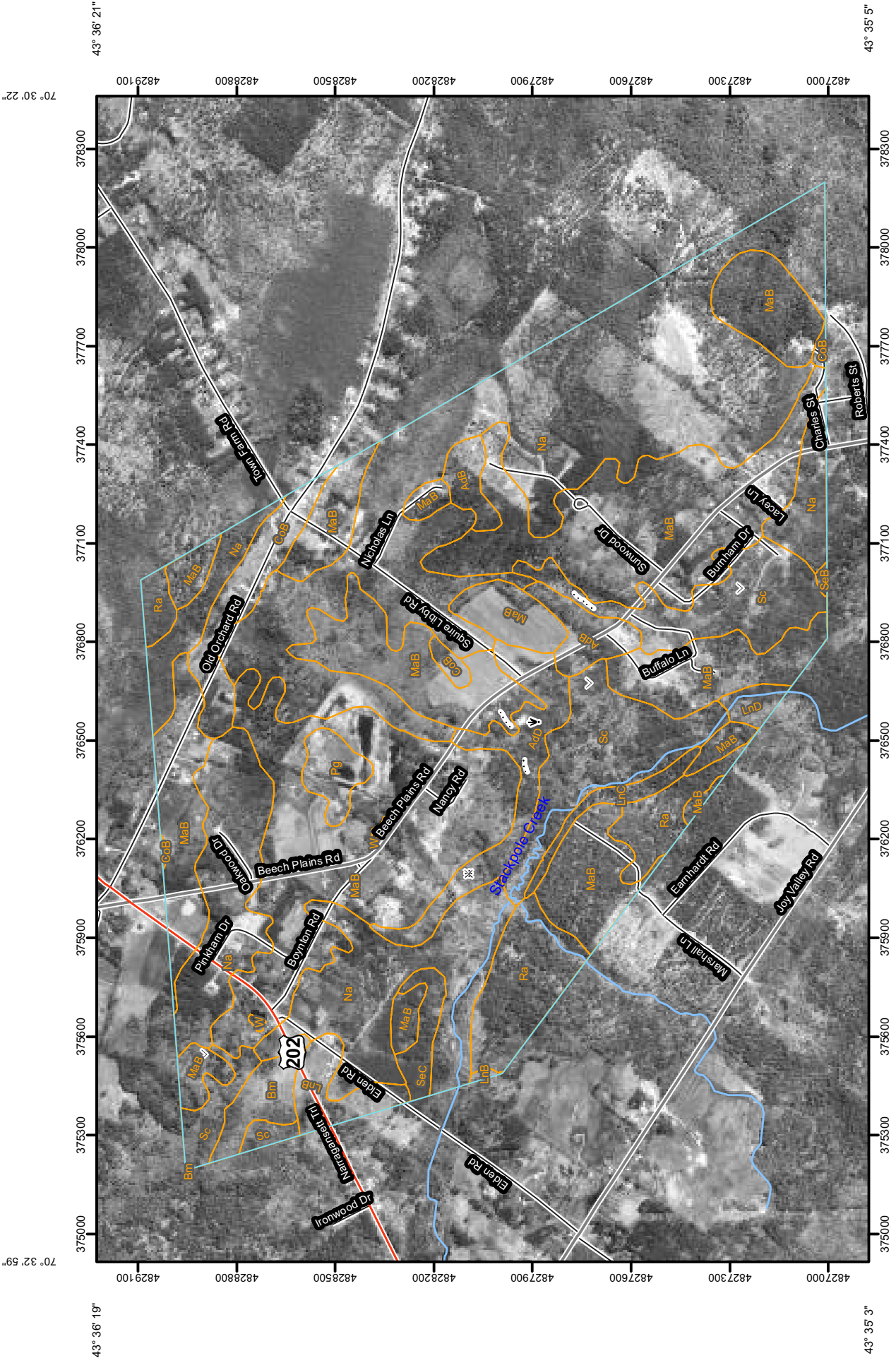
Soil Map—York County, Maine
(Saco-Buxton, Rt. 112)



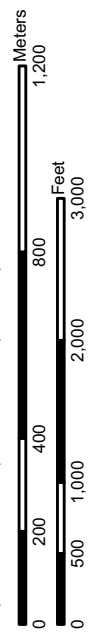
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

































Soil Map—York County, Maine
(Saco-Buxton, Rt. 112)



Map Scale: 1:16,800 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

 Area of Interest (AOI)	 Very Stony Spot
 Soil Map Units	 Wet Spot
Special Point Features	 Other
 Blowout	Special Line Features
 Borrow Pit	 Gully
 Clay Spot	 Short Steep Slope
 Closed Depression	 Other
 Gravel Pit	Political Features
 Gravelly Spot	 Cities
 Landfill	Water Features
 Lava Flow	 Oceans
 Marsh or swamp	 Streams and Canals
 Mine or Quarry	Transportation
 Miscellaneous Water	 Rails
 Perennial Water	 Interstate Highways
 Rock Outcrop	 US Routes
 Saline Spot	 Major Roads
 Sandy Spot	 Local Roads
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	
 Spoil Area	
 Stony Spot	

MAP INFORMATION

Map Scale: 1:21,100 if printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:20,000.
 Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 19N NAD83

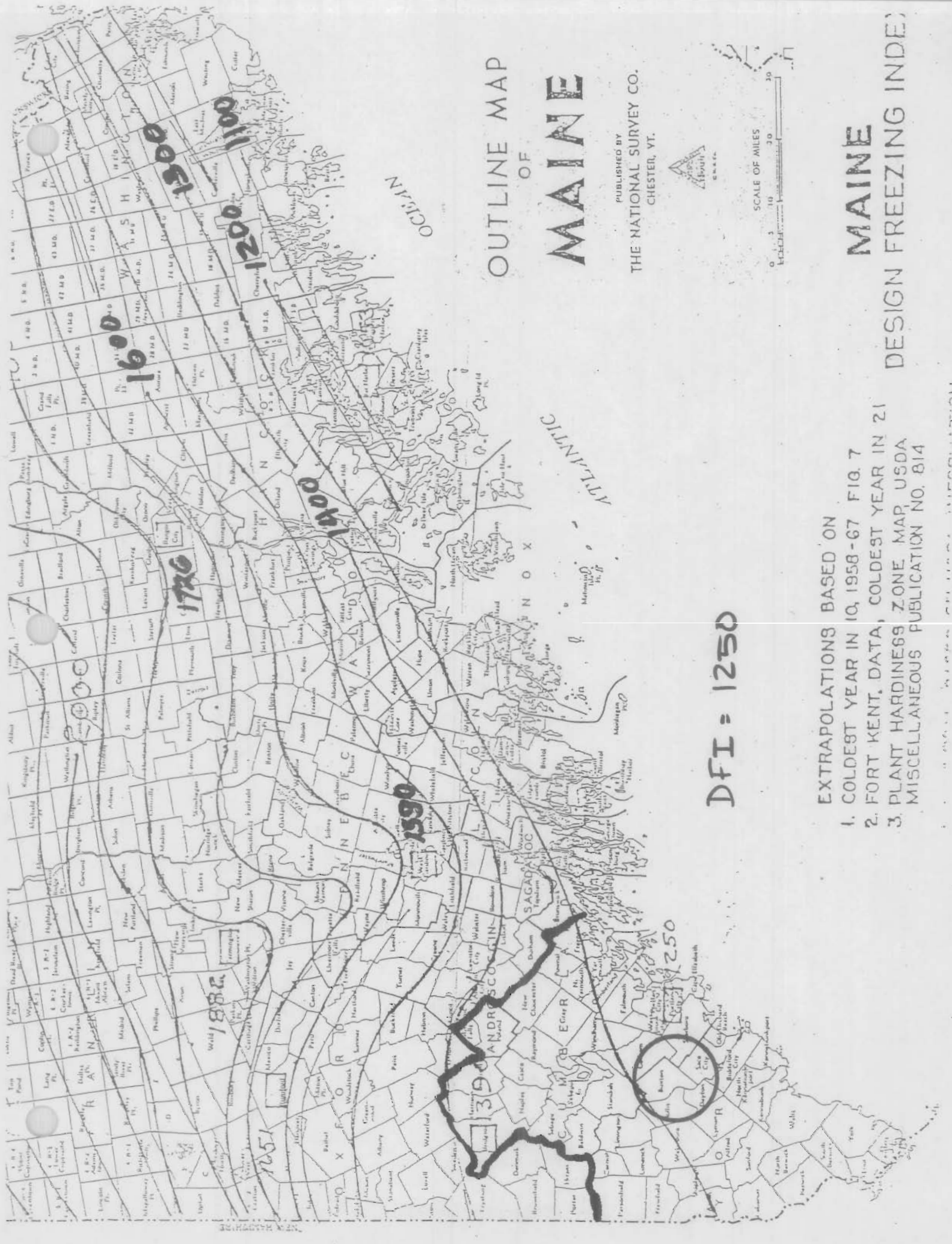
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
 Survey Area Data: Version 11, Jan 7, 2009
 Date(s) aerial images were photographed: 4/29/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

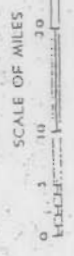
York County, Maine (ME031)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	14.0	1.1%
AdC	Adams loamy sand, 8 to 15 percent slopes	5.3	0.4%
AdD	Adams loamy sand, 15 to 40 percent slopes	39.7	3.2%
AIB	Allagash very fine sandy loam, 3 to 8 percent slopes	75.8	6.2%
Bm	Biddeford mucky peat	22.5	1.8%
BuB	Buxton silt loam, 3 to 8 percent slopes	3.0	0.2%
BuC	Buxton silt loam, 8 to 15 percent slopes	38.9	3.2%
BuD	Buxton silt loam, 15 to 25 percent slopes	65.1	5.3%
Ch	Chocorua peat	23.0	1.9%
CoB	Colton gravelly loamy coarse sand, 0 to 8 percent slopes	21.4	1.8%
CrB	Croghan loamy sand, 0 to 8 percent slopes	149.7	12.2%
LnB	Lyman fine sandy loam, 3 to 8 percent slopes	109.6	9.0%
LnC	Lyman fine sandy loam, 8 to 15 percent slopes	30.4	2.5%
LnD	Lyman fine sandy loam, 15 to 25 percent slopes	13.3	1.1%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	28.6	2.3%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	97.6	8.0%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	41.5	3.4%
MaB	Madawaska fine sandy loam, 0 to 8 percent slopes	31.3	2.6%
Na	Naumburg sand	202.7	16.6%
Pg	Pits, gravel	3.5	0.3%
Ra	Raynham silt loam	3.3	0.3%
Sc	Scantic silt loam	140.7	11.5%
SeB	Scio silt loam, 3 to 8 percent slopes	33.6	2.7%
SeC	Scio silt loam, 8 to 15 percent slopes	5.8	0.5%
Sg	Sebago peat	20.8	1.7%
W	Water bodies	2.6	0.2%
Totals for Area of Interest		1,223.5	100.0%



DFI = 1250

OUTLINE MAP OF MAINE

PUBLISHED BY THE NATIONAL SURVEY CO. CHESTER, VT.



MAINE

DESIGN FREEZING INDEX

- EXTRAPOLATIONS BASED ON
1. COLDEST YEAR IN 10, 1958-67 FIG. 7
 2. FORT KENT, DATA, COLDEST YEAR IN 21
 3. PLANT HARDINESS ZONE MAP, USDA MISCELLANEOUS PUBLICATION NO. 814

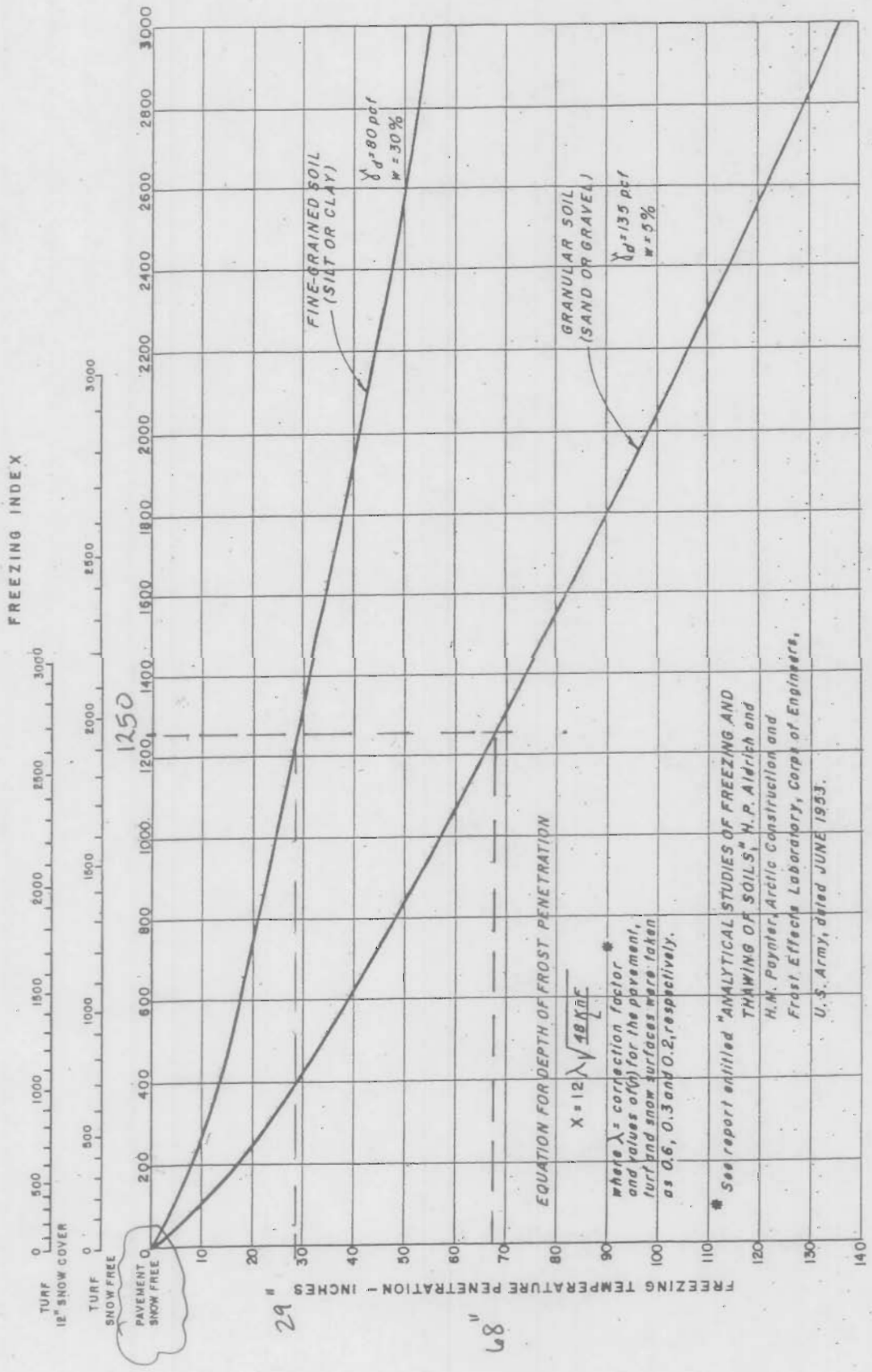
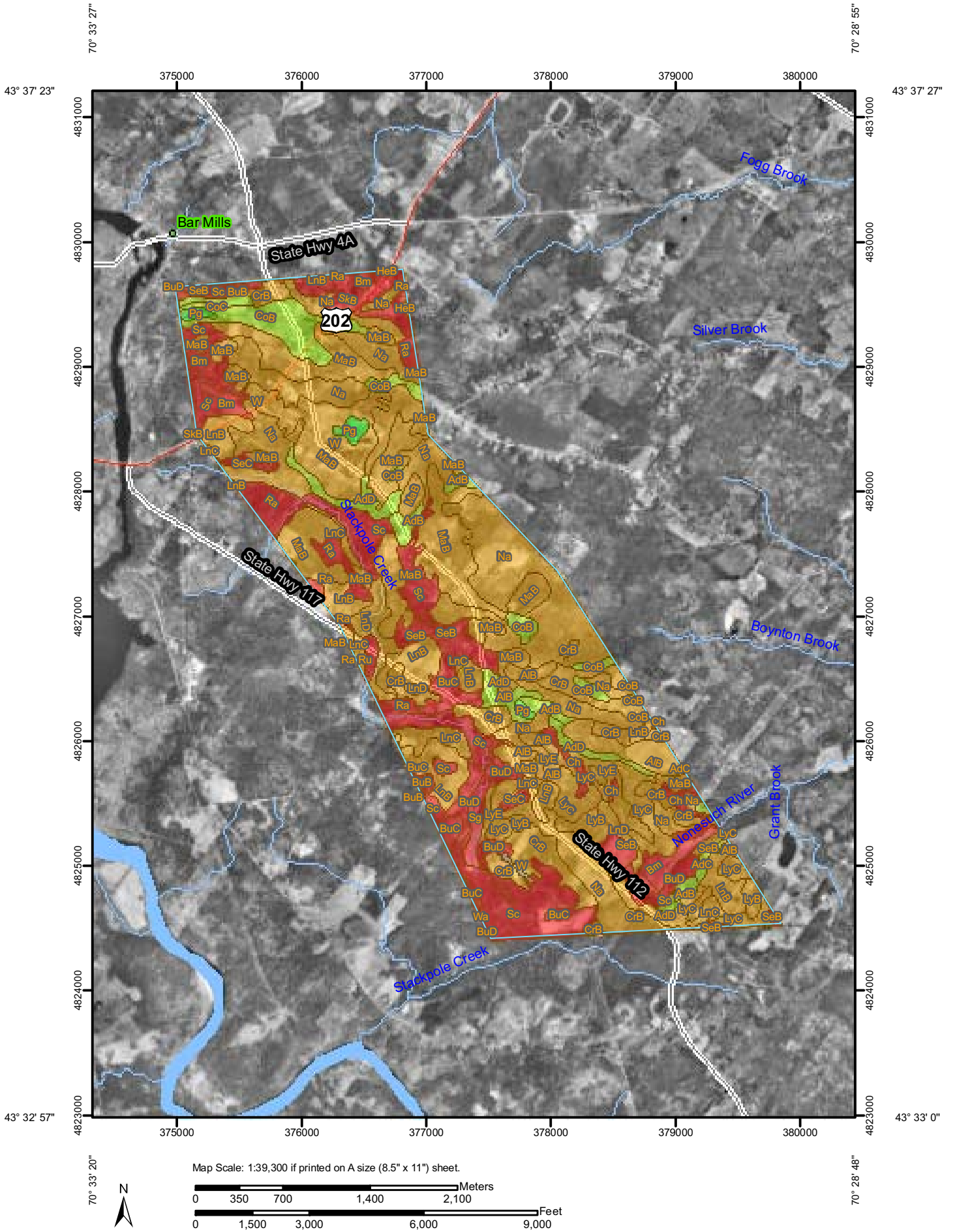
















Figure 13-3 RELATIONSHIP BETWEEN FREEZING INDEX AND FREEZING TEMPERATURE PENETRATION FOR VARIOUS SURFACE CONDITIONS FOR GRANULAR AND FINE-GRAINED SOILS



MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 -  Soil Map Units
- Soil Ratings**
 -  High
 -  Moderate
 -  Low
 -  None
 -  Not rated or not available
- Political Features**
 -  Cities
- Water Features**
 -  Oceans
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads

MAP INFORMATION

Map Scale: 1:39,300 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
 Survey Area Data: Version 11, Jan 7, 2009
 Date(s) aerial images were photographed: 4/29/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Frost Action

Frost Action— Summary by Map Unit — York County, Maine				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	Low	29.8	1.1%
AdC	Adams loamy sand, 8 to 15 percent slopes	Low	5.3	0.2%
AdD	Adams loamy sand, 15 to 40 percent slopes	Low	66.3	2.5%
AIB	Allagash very fine sandy loam, 3 to 8 percent slopes	Moderate	76.3	2.9%
Bm	Biddeford mucky peat	High	46.1	1.7%
BuB	Buxton silt loam, 3 to 8 percent slopes	High	5.6	0.2%
BuC	Buxton silt loam, 8 to 15 percent slopes	High	42.5	1.6%
BuD	Buxton silt loam, 15 to 25 percent slopes	High	66.1	2.5%
Ch	Chocorua peat	High	23.2	0.9%
CoB	Colton gravelly loamy coarse sand, 0 to 8 percent slopes	Low	105.7	4.0%
CoC	Colton gravelly loamy coarse sand, 8 to 15 percent slopes	Low	9.5	0.4%
CrB	Croghan loamy sand, 0 to 8 percent slopes	Moderate	174.5	6.6%
HeB	Hermon fine sandy loam, 3 to 8 percent slopes	Low	1.6	0.1%
LnB	Lyman fine sandy loam, 3 to 8 percent slopes	Moderate	159.5	6.0%
LnC	Lyman fine sandy loam, 8 to 15 percent slopes	Moderate	48.0	1.8%
LnD	Lyman fine sandy loam, 15 to 25 percent slopes	Moderate	45.2	1.7%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	Moderate	29.9	1.1%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	Moderate	109.6	4.1%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	Moderate	41.5	1.6%
MaB	Madawaska fine sandy loam, 0 to 8 percent slopes	Moderate	468.8	17.6%
Na	Naumburg sand	Moderate	567.2	21.3%
Pg	Pits, gravel	None	17.9	0.7%
Ra	Raynham silt loam	High	71.1	2.7%
Ru	Rumney loam	High	7.7	0.3%

Frost Action— Summary by Map Unit — York County, Maine				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Sc	Scantic silt loam	High	311.5	11.7%
SeB	Scio silt loam, 3 to 8 percent slopes	High	39.8	1.5%
SeC	Scio silt loam, 8 to 15 percent slopes	High	14.4	0.5%
Sg	Sebago peat	High	20.8	0.8%
SkB	Skerry fine sandy loam, 0 to 8 percent slopes	High	52.8	2.0%
W	Water bodies		3.4	0.1%
Wa	Waskish peat	High	0.2	0.0%
Totals for Area of Interest			2,661.9	100.0%

Description

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Rating Options

Aggregation Method: Dominant Condition

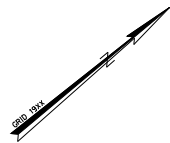
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

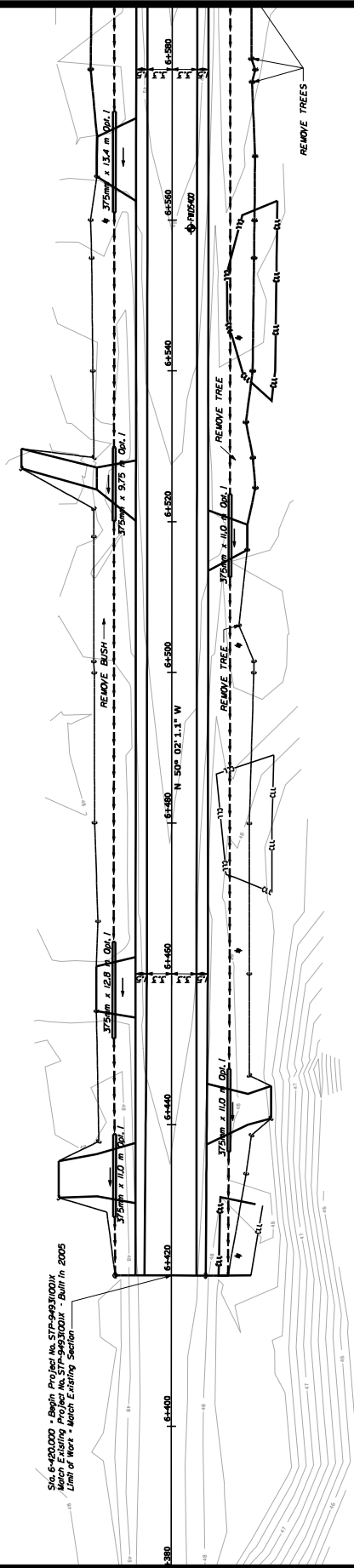
METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER	9493.10
DATE	11/11/11
SCALE	1" = 100'
PROJECT NAME	STP-949310001
NO. OF SHEETS	1
SHEET NO.	32



Sic. 6-420,000 - Begin Project No. STP-949310001
 Main Existing Project No. STP-949310001 - Built in 2005
 Main of Main - Bench Existing Section



HP - LEGEND
 PWD - SOLID STEM AUGER W/DESCRIPTIONS

PROJECT DESIGN ENGINEER	DATE
DESIGN CHECKED	BY
DATE	
DESIGNED	
REVISIONS	
FIELD CHANGES	

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

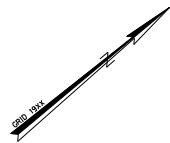
GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE OF

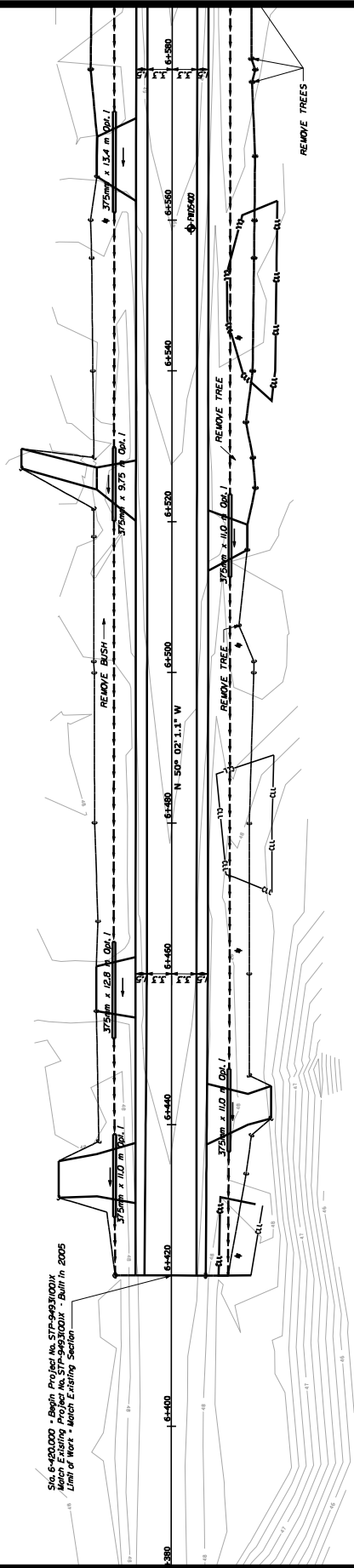
METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

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DATE	11/11/11
SCALE	1" = 10.000'
PROJECT NAME	STP-949310001
DATE	11/11/11
SCALE	1" = 10.000'
PROJECT NAME	STP-949310001
DATE	11/11/11
SCALE	1" = 10.000'
PROJECT NAME	STP-949310001
DATE	11/11/11
SCALE	1" = 10.000'
PROJECT NAME	STP-949310001
DATE	11/11/11
SCALE	1" = 10.000'
PROJECT NAME	STP-949310001
DATE	11/11/11
SCALE	1" = 10.000'



Sic. 6-420,000 - Begin Project No. STP-949310001
 Main Existing Project No. STP-949310001 - Built in 2005
 Main of Main - Bench Existing Section



HP LEGEND
 PWD SOLID STEM AUGER W/DESCRIPTIONS

PROJECT DESIGN ENGINEER	DATE
DESIGN CHECKED	DATE
DESIGNED	DATE
REVISIONS	DATE
FIELD CHANGES	DATE

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

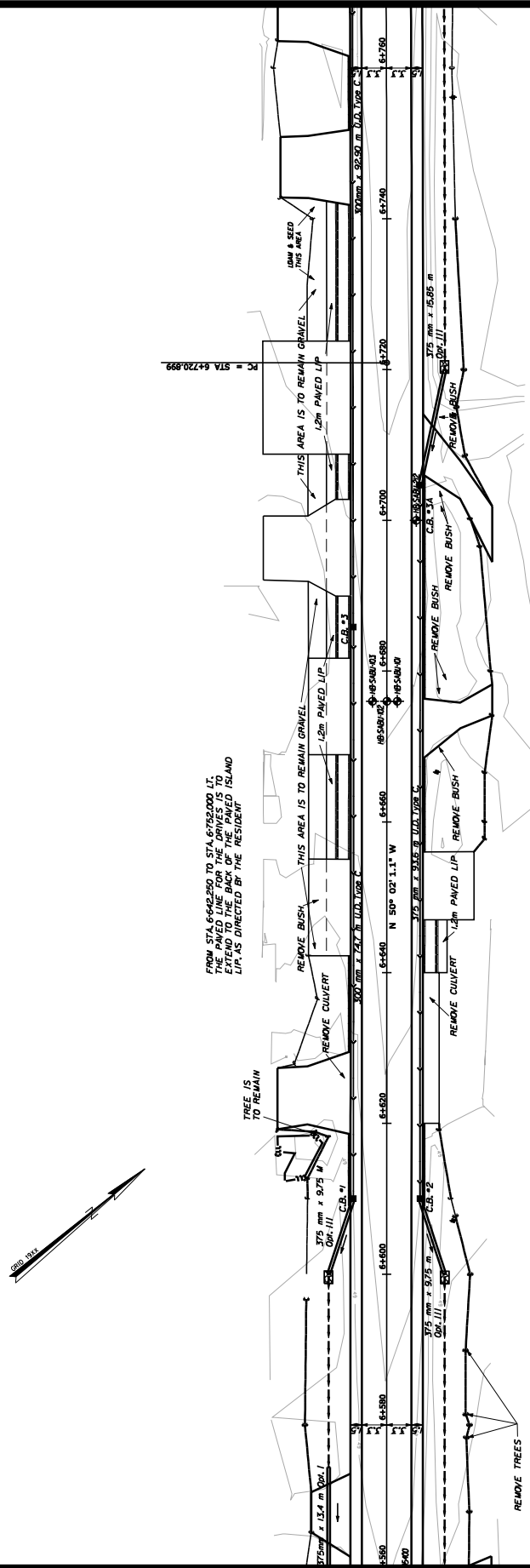
GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE OF

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 2
 DATE: 02/28/2011



PROJECT DESIGN ENGINEER	DATE
PLANS	MAR 2007
DESIGN-DATE	1. WHITE
REVISIONS	
FIELD CHANGES	

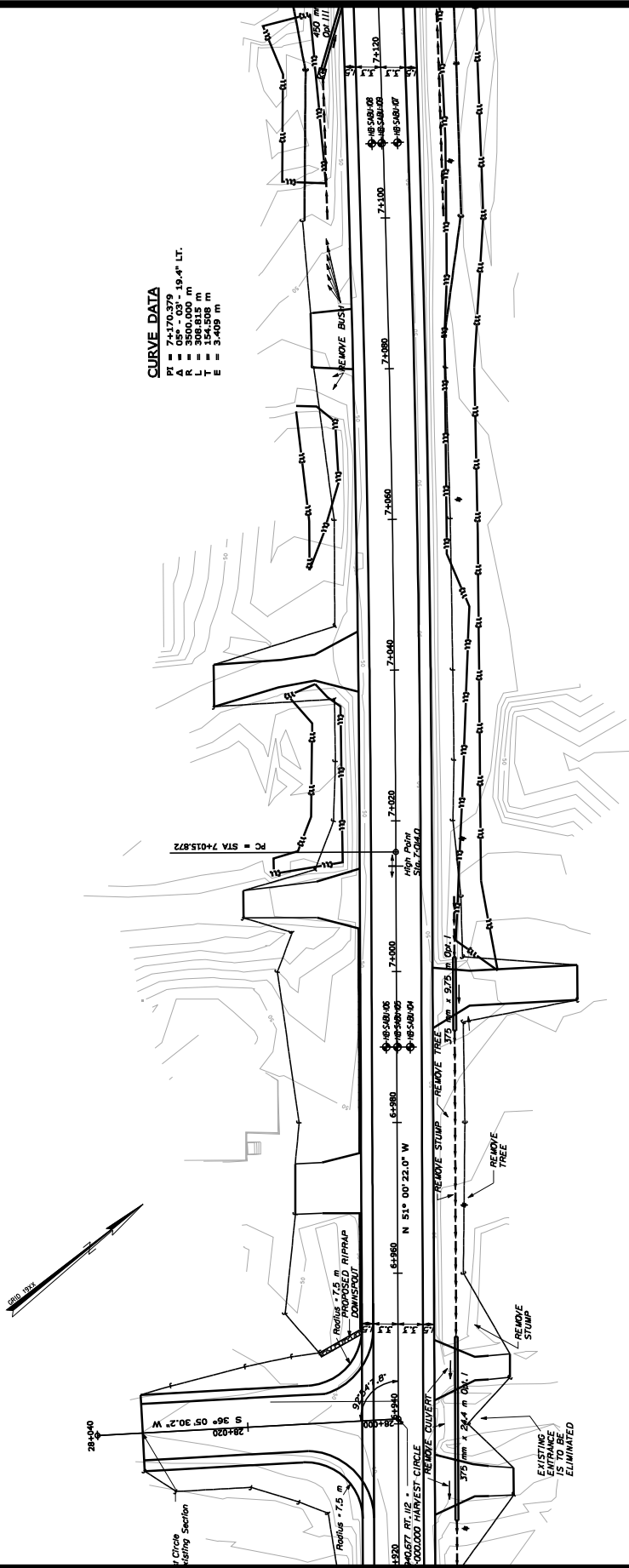
STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE: 1" = 100'

METRIC 1. All dimensions are in millimeters unless otherwise noted. 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 4 OF 32
 DATE: 03/28/2011



CURVE DATA
 PI = 7+270.379 30.4° LT.
 R = 3500.000 m
 L = 306.835 m
 E = 3.409 m

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE: 1" = 20.000'

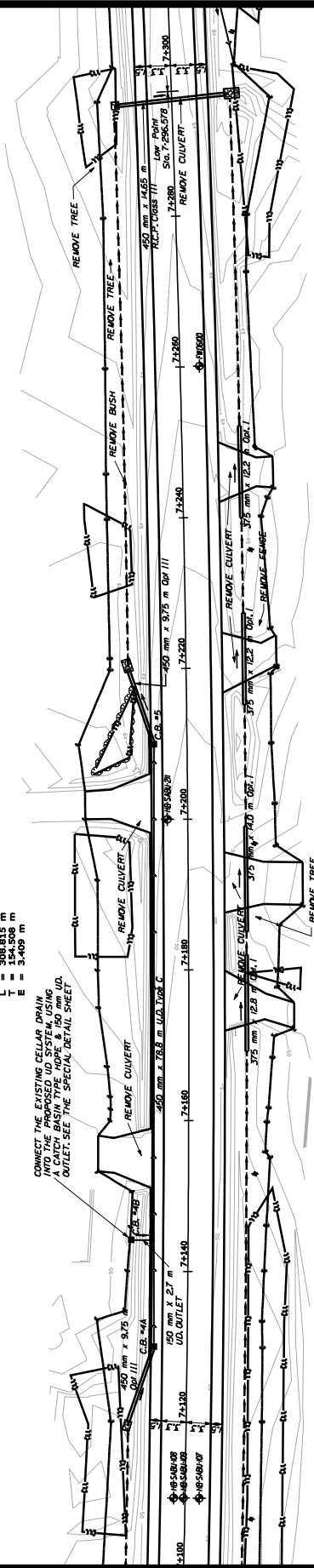
PROJECT DESIGN ENGINEER	BY	K. GROSS	DATE	MAR 2007
DESIGN CHECKED	BY	T. WHITE	DATE	
REVISIONS				
FIELD CHECKS				

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 5 OF 32

CURVE DATA
 PI = 74+170.379
 A = 05° - 03' - 19.4" LT.
 R = 3500.000 m
 L = 124.508 m
 T = 3.409 m

CONNECT THE EXISTING CELLAR DRAIN INTO THE PROPOSED U/D SYSTEM, USING THE EXISTING MANHOLE AS AN OUTLET. SEE THE SPECIAL DETAIL SHEET.



PROJECT DESIGN ENGINEER	DATE
PLANS	BY
REVISIONS	DATE
FIELD CHANGES	DATE

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

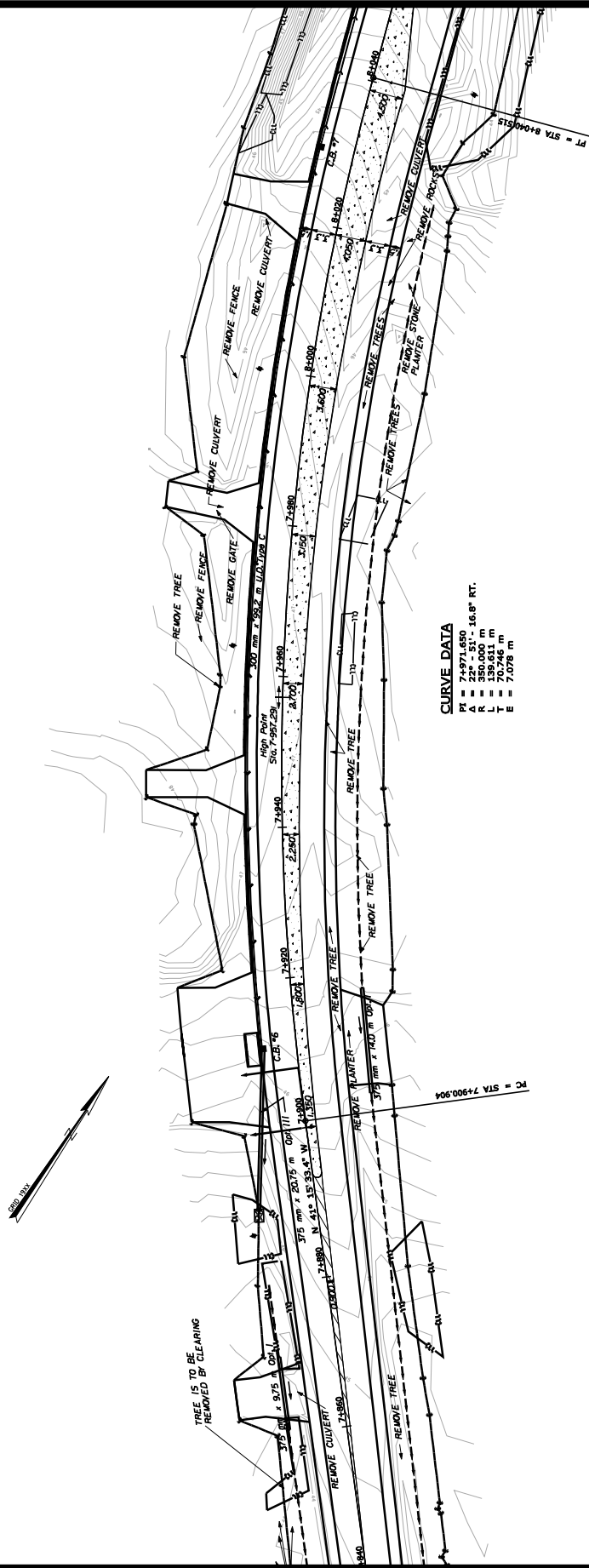
GEOPLANS

SACO - BUXTON
 ROUTE 112

SCALE: 1" = 100'

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 9 OF 32
 DRAWN: K. GROSS
 CHECKED: T. WHITE
 DATE: MAR 2007



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS

SACO - BUXTON
 ROUTE 112

SCALE: 1" = 100'

DATE: MAR 2007

PROJECT DESIGN ENGINEER	BY	DATE
PLANS	K. GROSS	MAR 2007
DESIGNER	T. WHITE	
CHECKED		
APPROVED		
FIELD CHANGES		

METRIC

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 2. All elevations and stations are in meters.

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DATE	12/12/11



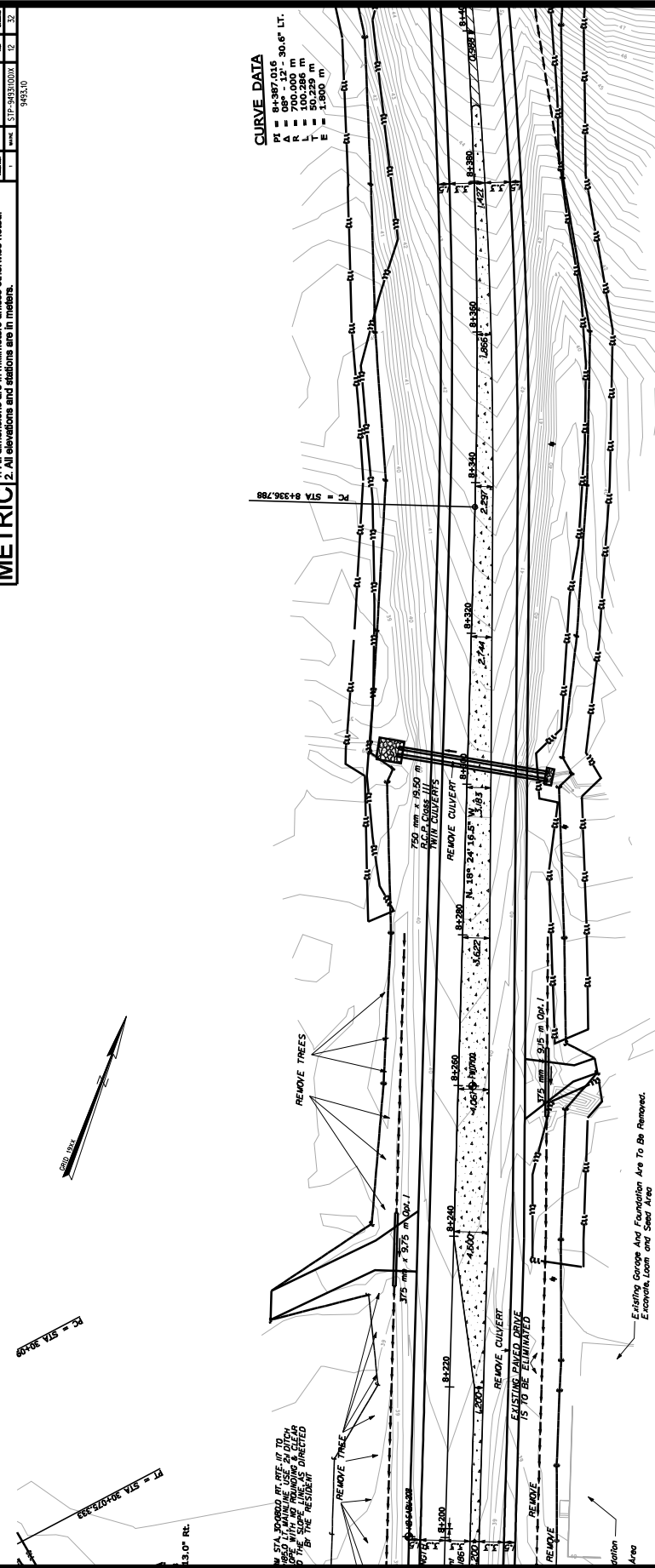
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PI = STA 30400.333

13.0' RT.

CURVE DATA
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 R = 100.286 m
 T = 50.229 m
 E = 1.900 m

PC = STA 8+336.788



REMOVE TREES

REMOVE TREES
 STA 30360.00 BE UP TO
 BESET IN MAINLINE USE 20' DITCH
 TO THE SLOPE LINE IS DIRECTION
 BY THE RESIDENT

750 mm x 750 mm
 100% CONC. ALL
 TWIN CULVERTS

REMOVE CURVERT

REMOVE CURVERT

REMOVE CURVERT
 EXISTING PAVED DRIVE
 IS TO BE ELIMINATED

REMOVE

REMOVE

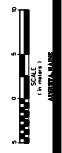
REMOVE

Existing Garage And Foundation Are To Be Removed.
 Excavate, Loin and Seed Area

PROJECT DESIGN ENGINEER	BY	DATE
K. GROSS	T. WHITE	MAR 2007
DESIGN DETAILER		
REVISIONS		
FIELD CHANGES		

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

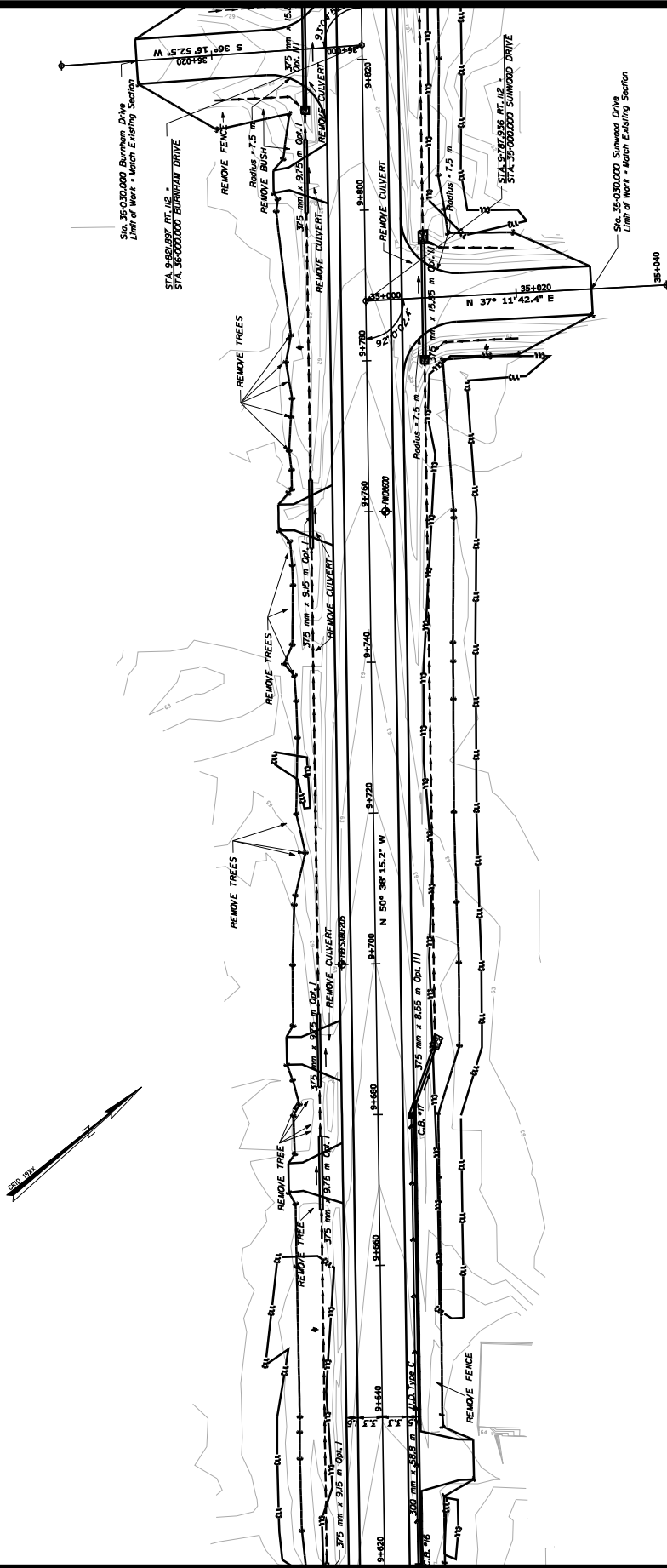


SCALE OF

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET NO.: 20
 DATE: 03/11/10



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

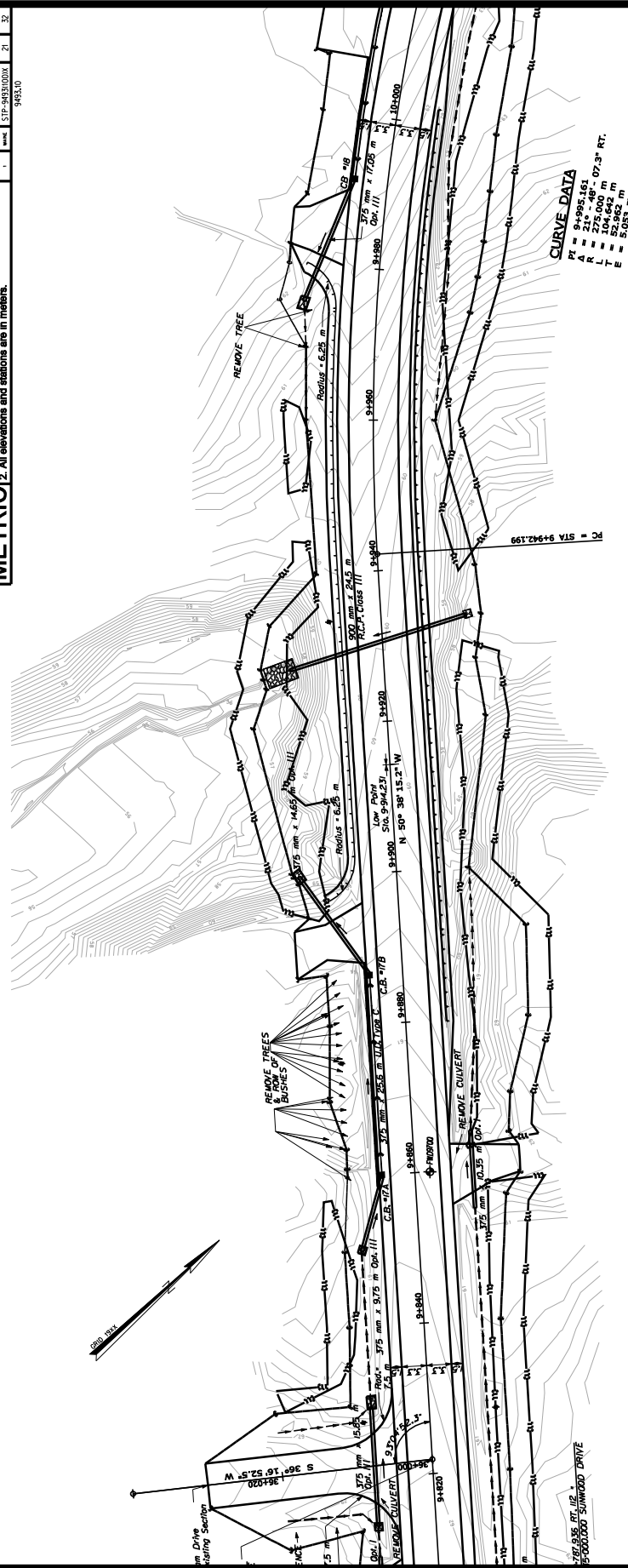
GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE: 1" = 30.48 M
 1:10,000

PROJECT DESIGN ENGINEER	DATE
DESIGN CHECKED	BY
REVISIONS	
FIELD CHANGES	

METRIC
 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 21
 DATE: 2/28/2011



CURVE DATA

PC	=	STA 94942.199
PT	=	94955.161
A	=	27.4° - 48' - 07.3\" RT.
R	=	1046.642 m
T	=	52.982 m
E	=	54.925 m

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS

SACO - BUXTON
 ROUTE 112

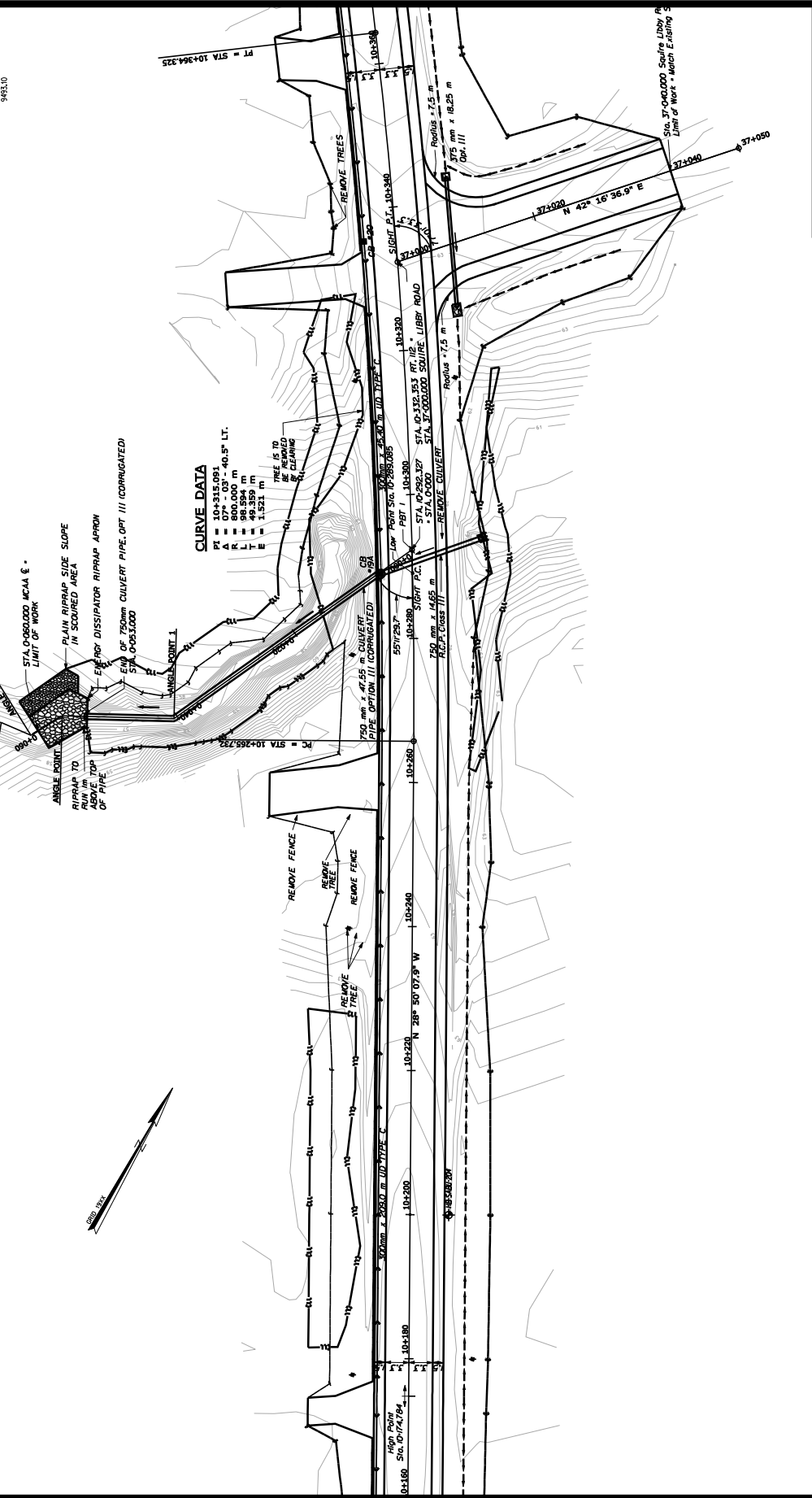
SCALE: 1" = 100'

PROJECT DESIGN ENGINEER	BY	K. GROSS	DATE	MAR 2007
DESIGNED	BY	T. WHITE	DATE	
CHECKED	BY		DATE	
REVISIONS	NO.	DESCRIPTION	DATE	
FIELD CHECKS				

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

9493.10
 SHEET NO. 23
 PROJECT NO. STP-949310001



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

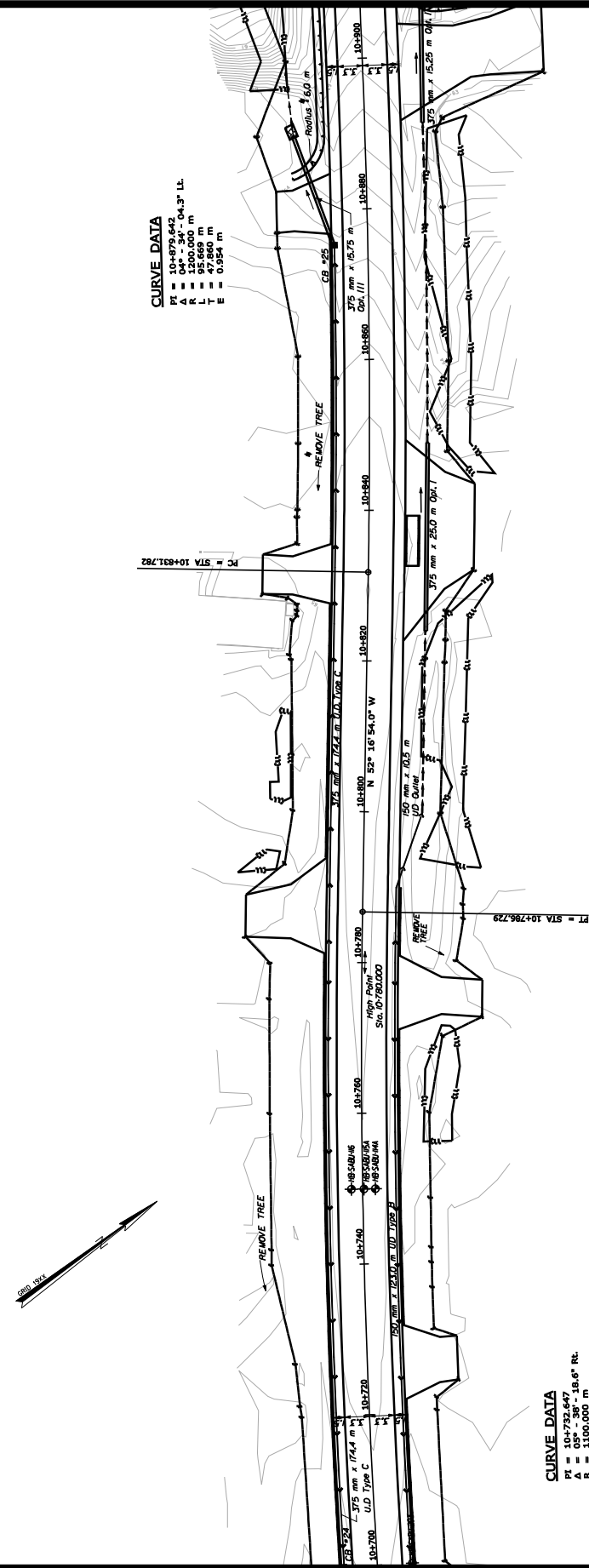
SCALE: 1" = 100' (VERTICAL)
 1" = 100' (HORIZONTAL)

PROJECT DESIGN ENGINEER	DATE
PLANS	-----
REVISIONS	-----
DRAWN BY	-----
CHECKED BY	-----
DESIGNED BY	-----
DATE	-----

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 94931.0
 SHEET: 25 OF 32



CURVE DATA
 PI = 10+879.645
 Δ = 04° - 34' - 04.3" Lt.
 R = 1200.000 m
 L = 77.661 m
 T = 47.860 m
 E = 0.954 m

CURVE DATA
 PI = 10+732.647
 Δ = 05° - 35' - 18.6" Rt.
 R = 1100.000 m
 L = 100.000 m
 T = 54.169 m
 E = 1.333 m

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

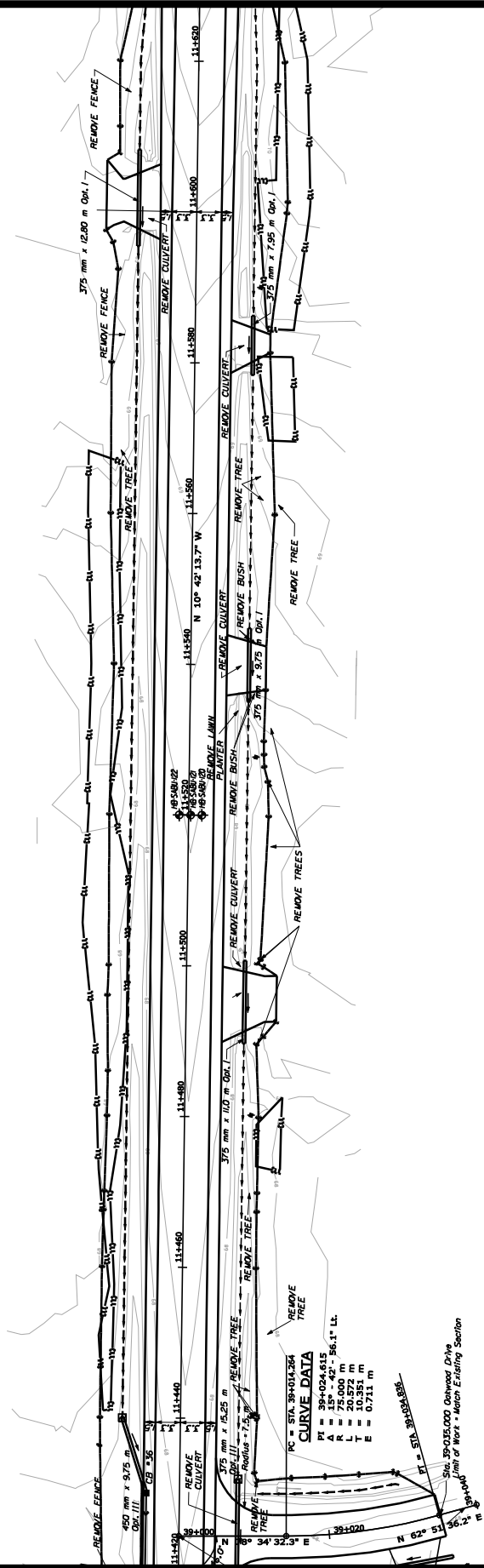
1:10000
 1" = 100.00 m

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN CHECKED	K. GROSS	MAR 2007
REVISIONS		
FIELD CHANGES		

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 9493.10
 SHEET: 30 OF 32



PROJECT DESIGN ENGINEER	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

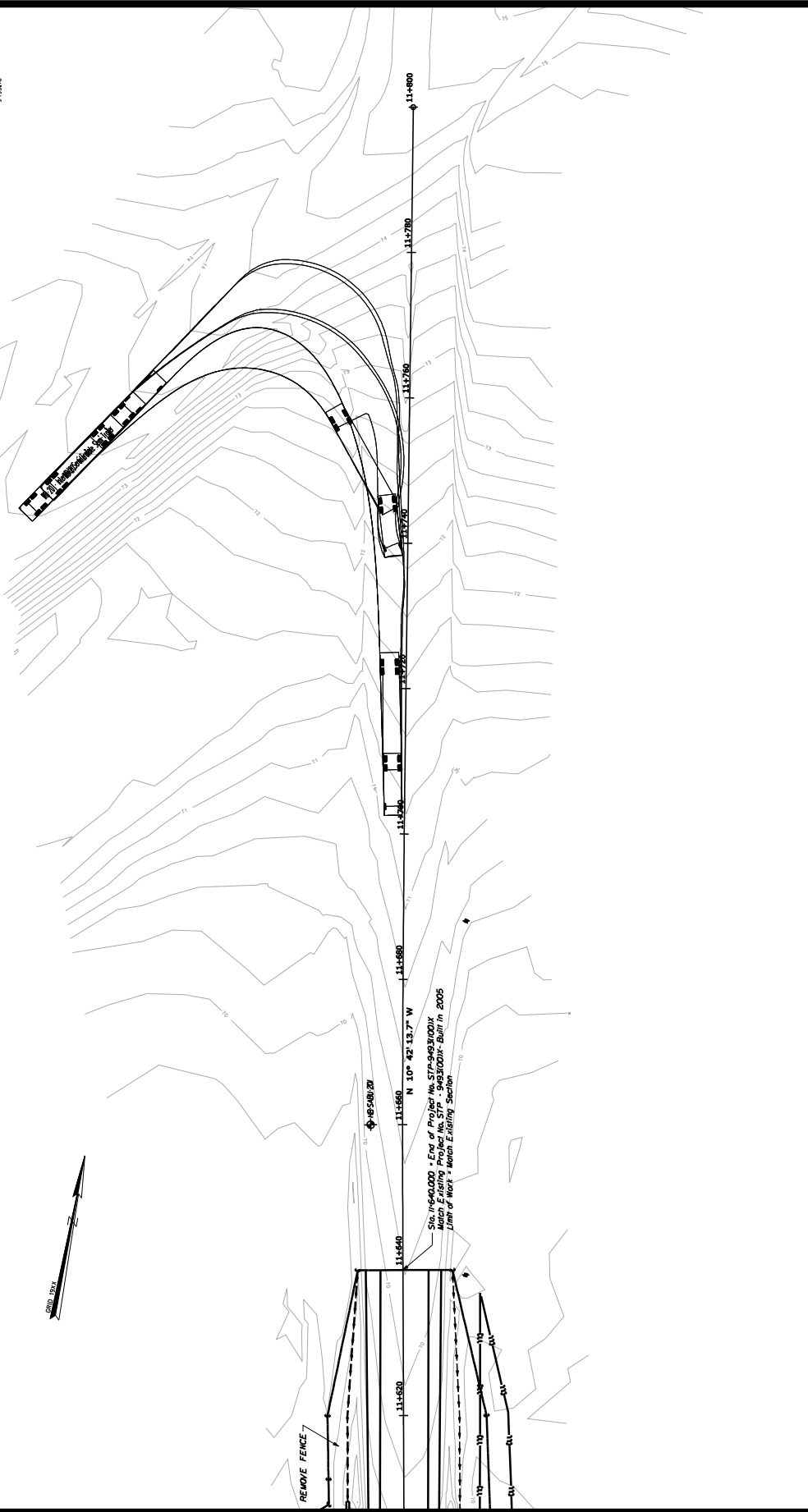
GEOPLANS

SACO - BUXTON
 ROUTE 112

SCALE: 1" = 30.48m

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

PROJECT NUMBER: 94931.0
 SHEET NUMBER: 31 OF 32



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

GEOPLANS
 SACO - BUXTON
 ROUTE 112

SCALE: 1" = 100' (1:2540)

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN DETAILER	K. GROSS	MAR 2007
CHECKED	T. WHITE	
REVISIONS		
FIELD CHANGES		